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ABSTRACT

This document provides two separate curriculum guides for pediatrics faculty to use in teaching medical students. The first section contains the alcohol abuse curriculum guide; the second section contains the drug abuse curriculum guide. The drug abuse guide concentrates on cannabis as a paradigm for all nonalcoholic drugs of abuse. Each guide includes an introduction and five chapters. Chapter 1 of each guide lists curriculum goals and objectives. Chapter 2 examines the pediatrician's role in the curriculum, focusing on subject matter, clinical skills, and attitude. Chapter 3 looks at several areas of core subject matter: history; epidemiology; definitions; biochemical, pharmacological, and physiological effects of alcohol (cannabis); psychological effects of alcohol (cannabis); psychological factors; and treatment. The alcohol abuse curriculum also contains a section on patterns of alcohol use in children and adolescents. Chapter 4 focuses on related drug issues. For the alcohol abuse curriculum, these issues include combined alcohol-polydrug use, management of acute intoxication and untoward reaction, the pregnant adolescent drinker, the fetal alcohol syndrome, and children of alcoholic parents. For the drug abuse curriculum, issues include multiple drug use, fetal drug syndromes, the drug-abusing mother, and management of untoward reactions and overdosage. Chapter 5 considers the problem of the student drinker (drug user). Both curricula conclude with several pages of references and appendices containing Attitudes and Opinions Questionnaires for students and annotated lists of curriculum material. (NB)

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Health Professions Education Curriculum Resources Series

Medicine

4

Alcohol and Drug Abuse Curriculum Guides for Pediatrics Faculty

CG 018993

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This monograph is composed of two curriculum guides, one for instruction on alcohol abuse and the other for instruction on drug abuse. Each guide explains and summarizes the core material and skills that the authors and reviewers regard as most important for the student to learn.

The instructor may use each guide as the basis of an individual course or may combine them when teaching both alcohol and drug abuse.

Alcohol and Drug Abuse Curriculum Guides for Pediatrics Faculty

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The Health Professions Education Curriculum Resources Series is sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) in cooperation with the National Institute on Drug Abuse (NIDA). Through the National Clearinghouse for Alcohol Information (NCALI), expert authors are requested to develop curriculum guides and other teaching resources and are assisted in the preparation of these materials. The views and recommendations presented are those of the authors. Rita Albery (NIAAA) and Dorothy Moore (NCALI), project coordinators, participated in the planning and development of this publication.

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Foreword

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the National Institute on Drug Abuse (NIDA) recognize the vital role of the physician in the diagnosis, treatment, and referral of patients with alcohol and other drug disorders. Physician education in alcohol and drug abuse is of critical importance in our efforts to combat these major medical problems.

To support medical school faculty in their efforts to make alcohol and other drug education an integrated, effective part of the curriculum, the Health Professions Education (HPE) Project was initiated by the Training Branch of NIAAA, in cooperation with NIDA. In response to the critical need for useful information in alcohol and drug abuse instruction, the HPE Project conducts a two-part effort to collect existing educational resources and make them available to health professions educators through the National Clearinghouse for Alcohol Information (NCALI) data base and to develop curriculum materials of specific use to medical educators in instructional planning.

This volume is one of a series of publications for use in designing alcohol and drug instruction and is offered to the medical education community in the hope that it will be a valuable resource in preparing physicians to treat alcohol and drug abuse disorders.

Robert G. Niven, M.D.,
Director, National Institute on
Alcohol Abuse and Alcoholism

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ALCOHOL ABUSE CURRICULUM GUIDE

Introduction

The problem of alcohol use in children and adolescents presents a special challenge to teachers, because alcohol consumption is ubiquitous in American society, is widely accepted in social settings, and commonly is regarded as a problem only if it occurs immoderately or among youth. Thus, the instructor must define this problem along two dimensions: (1) the limits of social drinking and (2) the age limit of acceptability. Although the latter is defined by law, the legal limits differ according to State and locality.

There are several definitions of alcohol abuse. These, however, apply generally to adults and have little relevance to younger users. This limitation also is true of the research on biochemical and physiological effects of alcohol, which has been done only with adult subjects. Thus, we are charged with teaching a subject on which there is a lack of basic knowledge concerning how it affects the young.

As for age, childhood and adolescence represent such a broad developmental spectrum that one must qualify all general formulations and modify them for each 3- or 4-year period of the total age span under consideration. Special emphasis is placed here on how alcohol affects psychological development during critical stages.

To maintain the appropriate focus, this guide omits, as far as possible, any reference to adult effects of alcohol except where they also apply to children and adolescents. In addition, the guide emphasizes, as does the American Academy of Pediatrics, that alcohol is a nonmedical drug with a high potential for abuse and, therefore, cannot be dealt with separately from the general problem of drug abuse, by children and adolescents (American Academy of Pediatrics 1975, 1983; MacDonald 1984).

Chapter 1
Goals and Objectives

Goals

Instruction on alcohol abuse should enable future practitioners in any of the primary care specialties (pediatrics, medicine, obstetrics, or psychiatry) to base their clinical decisions on adequate scientific knowledge. They should be able to recognize both the alcohol user and the child or adolescent at risk. They should be comfortable in diagnosing the disorder, talking with child and parents, dealing with patients whose problems they feel competent to handle, and making appropriate referrals where indicated. Moreover, teaching about alcohol as a drug of abuse should not be separated from discussing the general topic of drugs of abuse, in accordance with the American Academy of Pediatrics position on alcohol (1975).

Objectives

To achieve these goals, the student should achieve the following objectives:

- Define the basic biochemical and pharmacological properties and physiological actions of alcohol; explain the clinical implications and significance of these properties and actions
- Describe the cognitive and emotional changes associated with alcohol use, particularly as they apply to the developing personality; interpret them within the framework of normal child and adolescent development
- Identify the individual personality factors, age-related developmental characteristics, family influences, and cultural and social issues that predispose a person to and promote continuation of alcohol usage
- Identify patterns of alcohol use and alcohol/drug use practices
- Conduct an interview with a child or an adolescent; elicit a reliable drug history; perform a competent clinical assessment of the adolescent alcohol abuser
- Describe the essential goals of treatment for a child or an adolescent alcohol abuser, the different modalities of treatment available, and the indications for each; define the role of the family in the therapeutic process
- Recognize the clinical presentation of acute alcohol intoxication, acute adverse drug/alcohol reactions; be familiar with the principles of managing such a crisis
- Recognize the alcoholic parent; become familiar with the consequences for children of alcoholic parents

- Recognize the typical features of the fetal alcohol syndrome and other fetal alcohol effects; be conversant with the health hazards to mother and fetus associated with alcohol use during pregnancy, with emphasis on the pregnant adolescent
- Present information about alcohol and its use to patient, family, school, and community groups for the purpose of education and prevention
- Confront the attitudinal issues that complicate objective evaluation of the alcohol abuse problem, including the widespread acceptance of alcohol as a social drug and as a personal choice

Chapter 2
The Pediatrician's Role in the Curriculum

Teaching medical students about alcohol abuse in children and adolescents is done best by means of an interdisciplinary approach, using the coordinated efforts of faculty from the basic sciences, pediatrics, adolescent medicine, and psychiatry. In such an integrated program, the general plan is to present the core subject matter during the first 2 years, preparatory to studying clinical effects of alcohol use during the third and fourth years. Attitudinal issues are examined critically throughout the entire process.

Subject Matter

Subject matter for this curriculum is presented in chapters 3 and 4 of this guide. The most important aspects are physiological, neuropsychological, cognitive, and emotional effects, and their clinical manifestations. This knowledge is a prerequisite to functioning as a pediatrician and being called on to practice prevention, identification of children at risk, early intervention, diagnosis, and family and community education. The greater the depth of knowledge, the better equipped the pediatrician will be to meet clinical responsibilities and to inform patients and the public.

The context used in presenting the material will depend on which topic is being taught. For example, the core material on alcohol pharmacology and pharmacokinetics probably is presented best in the pharmacology context in connection with other drugs of abuse. Physiological and neurophysiological effects can be incorporated into either pharmacology or neurophysiology, depending on when and how related topics occur in the curriculum during the second year. A course in human behavior or medical psychology, usually part of the second-year medical curriculum, can include behavioral effects of alcohol, the impact of alcohol on the developmental process, motivation for starting and continuing to use beverage alcohol, predisposing factors, and psychodynamic issues. An alternative plan for the core curriculum is to present all aspects of drug abuse in a single interdisciplinary lecture series coordinated with small seminars.

Clinical Skills

The foregoing introduction prepares the student to develop the clinical skills required for interviewing children and adolescents, to discussing alcohol use with them, presenting information to parents, evaluating an individual's receptivity to intervention, and preparing the patient to accept referral. Training in these skills can begin with live or taped demonstration (mock) interviews using the models developed in medical and psychiatric interviewing. These would be followed by student interviews with patient surrogates. Finally, the student would interview real patients. If the patient gives informed, written consent, tape recordings of these sessions (as specified by the ethical policy of the institution) will be useful for subsequent group discussion and analysis. Such techniques have the added value of extending training opportunities in centers having relatively little access to adolescent drug users.

The third-year clinical clerkships provide many opportunities for students to gain experience in dealing with individual patients. Furthermore, by observing preceptor models in a variety of adolescent clinical settings and then incorporating preceptor behavior, the student learns how to be reassuring without being condescending and how to foster receptivity on the part of the patient. The student also learns to employ adolescent colloquialisms appropriately, thus enhancing communication.

The fourth year, which in most medical schools offers an elective curriculum, provides students interested in pediatrics an opportunity to apply their skills and knowledge to a most critical aspect of alcohol abuse, namely, prevention. This can be done in pediatric continuity care clinics or in preceptorships with private practitioners. In these two very different contexts, the student can learn that primary prevention depends heavily on education, wnich starts with the individual child but also includes family, school, and community.

Education of the individual about alcohol, as in the case of tobacco use and sexuality, begins in childhood, at a time when family standards and adult values in general are being assimilated by the child. Well-child visits during prepubertal years offer opportunities to discuss these issues, probably in combination rather than separately. A useful approach is to ask whether these topics are being talked about in school or among friends. Communication can be encouraged by suggesting that the child may have wondered why some people drink or whether there is any harm in trying alcohol or other drugs.

The approach in all encounters is adapted to the particular developmental level of the child, integrating age-appropriate information with discussions that naturally occur during the examination. For example, for a pubertal child who is anxious about body image and appearance, comments on the caloric value of alcohol and its lipogenic potential would be pertinent during a discussion of weight and nutrition, and a statement about the feminizing effects of alcohol could be included when discussing sexual maturation with a male adolescent. Anticipatory guidance concerning alcohol use during pregnancy is essential for all female adolescents and can be introduced in a general discussion about menstruation and pregnancy.

In the course of these experiences, the student physician will discover that the patient's education, like the student's own, will not be accomplished in one visit. In addition, a positive attitude toward oneself and one's well-being must evolve, and this process requires months and years of emotional and intellectual investment.

As the pediatrician interacts with them, the patient and the family will be predisposed to view the doctor as benign and helpful. Thus, rapport is established easily. The problem for the student pediatrician is to maintain that rapport by avoiding a judgmental stand that could alienate the patient or activate the parents' defenses. On the other hand, a neutral or permissive physician may do the child an injustice in the long run and may subsequently experience recrimination from parents, who often expect the pediatrician to guide the child in basic health issues.

Thus, the pediatrician's counseling must be consistent with a concern for the child's present and future welfare, while conveying knowledge about the effects of alcohol. Because the pediatrician's relationship with patient and family has always emphasized well-being, health, and prevention, the alcohol issue can be placed in that same context. The pediatrician can then be comfortable with the preventive, helping role and thereby communicate a sense of ease and helpfulness.

Primary prevention at the family level will involve a discussion with the family as a group, encouraging parents to examine their own beliefs as well as their alcohol and drug practices. Parents need to look at how their beliefs and practices affect their offspring and to require that children perceive consistencies or inconsistencies in parents' practice and preaching. Again, these are not one-time efforts; they require continuity and changes of emphasis as the child moves into and through adolescence.

Secondary prevention involves identification of those at risk and early intervention for those who may be in the first stages of experimentation. Because it is not always possible to differentiate the at-risk person from the beginning user, these two categories of patients can be dealt with in the same way. Psychological factors and family stresses should be recognized as risk factors.

Early identification having been made, the next step is to discuss with the child, in specific rather than in general terms, particular psychological or family stresses and whatever social pressures the child may be experiencing. This is the time when alcohol and other drug issues can be addressed individually rather than generally. After separate discussions with the child and the parents, a family discussion would be in order, followed by a joint decision about appropriate intervention measures. (See the section on treatment.)

The most difficult problem for the student pediatrician, as well as for the parent, is to know when to believe a child's denial of alcohol abuse. Children are rarely frank with parents and, fearing a betrayal of trust, often are hesitant to confide in the pediatrician. One must tread a fine line to assure confidentiality, lest the relationship be jeopardized and effectiveness lost. On the other hand, parents cannot be excluded from knowledge of potential danger. It is best to inform the child that any confidence will be respected if the child's health or life is not in danger. The child also is asked to consider whether his or her parents have not, on balance, usually reacted supportively when needed, and what would happen if they were to learn later, rather than sooner, the true state of affairs. The child should be encouraged to share, voluntarily, any problem with his or her parents so that all can participate in a constructive resolution. Once the child has discovered that talking with an understanding adult is possible, fears and guilt become partially neutralized, making it easier for the child to talk with his or her parents.

Attitude

Enabling the student to develop appropriate professional attitudes is a challenging task for faculty because of the subject matter, about which there is much ambivalence, and because adolescents are the patient group. Whatever the student's personal beliefs and practices regarding alcohol, alcohol must be seen as a potential problem for the child or adolescent. The pediatrician must appreciate the hazards and, at the same time, remain optimistic about prevention and treatment.

The age of the medical student is another barrier to developing an appropriate attitude. Because most students are chronologically young and not far advanced beyond the adolescent stage of development, they (1) tend to over identify with this age group of patients, (2) can be highly defensive on the patient's behalf, and (3) often are unable to achieve distance and objectivity. This is not helpful to either student or patient.

Exploration of student attitudes and opinions early in the program is helpful as an orienting exercise. Self-administered questionnaires have been used effectively in other contexts to facilitate discussions of student attitudes related to drug use (Anker and Milman 1972). This method can be used early in this curriculum as well (Appendix A). The results can help to sensitize the faculty and also help the students develop perspective regarding their own beliefs, while encouraging them to speculate on how opinions are formed and maintained.

Clarifying ideas, discriminating between opinion and fact, and enabling students to develop an appropriately mature, professional attitude are time-related and time-consuming processes. They begin with the first student-patient encounter. Depending on the educational philosophy of the medical school, this may occur as early as the first year in a family practice clinic. In the earliest and subsequent situations, the clinical teacher has the advantage of participating in the process and can demonstrate how to be both empathic and detached in transactions with patients. The tone is set by the teacher's compassion and concern. As the students assimilate the appropriate demeanor, its elements can be analyzed in small preceptor-student conferences in which the teacher encourages the students to speculate on the qualities of mind that are necessary for this type of professionalism and duality. Such discussion can be enlarged on in the third year and can become more analytical in developmental pediatric seminars and in child guidance and well-child continuity clinics. In a climate of continuous monitoring, analyzing, and reflecting on the successes and failures of each interaction with a patient, sensitivities and attitudes can be shaped that will prove effective not only in the treatment of drug and alcohol abuse but in dealing with other sensitive issues of adolescence as well.

Chapter 3
Core Subject Matter

History

Alcohol has been used in virtually all known societies throughout human history, from the preagricultural era to the modern, industrialized world. In the quest for mind-altering substances, human ingenuity has produced a wide variety of fermented fruits, grains, and vegetables. Despite alcohol's widespread cultural acceptance, however, there remains considerable ambivalence about the proper role of beverage alcohol in social life and about acceptable limits of alcohol consumption (Akers 1977; Levine 1978; Paredes 1976).

Alcohol, first introduced into the Americas by European immigrants, has continued to occupy a prominent position in social customs, business transactions, religious ceremonies, and family gatherings. Cultural acceptance has gone hand in hand with the economic success of the alcohol industry in this country, beginning in prerevolutionary times with the profitable rum-molasses-slave trades and extending into modern times with alcohol-advertising-entertainment activities.

The profitability of alcohol, combined with its undeniable pleasurable and deleterious pharmacological effects, has led to an unresolved ambivalence in public attitude. Drinking has been characterized as good or bad depending on the degree of inebriation, the circumstances, and the context of drinking (Akers 1977). While condemning alcohol abuse, the American public has not developed a genuine consensus on what constitutes abuse. For example, although drunkenness is generally deplored and sometimes legislated against, as in laws against driving while intoxicated, it also is viewed by some as "manly" and by many as permissible under special circumstances, such as on New Year's Eve and other occasions for celebrating. Moreover, drinking is incorporated informally into various aspects of public and private life, including the so-called business lunch, many social gatherings, political and professional conferences, and even routine family dining.

Ambivalent attitudes have been apparent in American liquor laws: some States allow beer, but not wine or liquor, to be sold in supermarkets; some States permit the sale of beverage alcohol only in State-licensed liquor stores; some States permit the sale of liquor only for private consumption and do not allow drinking in public; some States disallow drinking or purchasing liquor on Sundays and holidays. This basic ambivalence was demonstrated in adoption of the 18th constitutional amendment, which prohibited the use of alcohol except for medicinal purposes, and subsequent repeal of that amendment.

Nowhere is this ambivalent attitude seen more clearly than in the context of teenage drinking. There is less agreement about the appropriateness of underage drinking than there is about excessive drinking in general. Although studies have indicated that both teenagers and adults find unsupervised youthful drinking undesirable (Maddox and McCall 1964), large numbers of adolescents regularly consume alcoholic beverages (NIAAA 1981) and many parents, apparently fearing other drugs, seem grateful when they learn that their children are "only drinking." Ambivalence about adolescent drinking also is revealed in State laws governing the legal age limit for drinking, which varies among States. Since the termination of universal prohibition, a number of States have changed their legal drinking age from age 18 to 21, back to 18, and then recently to age 19 or 20. Currently, there is pressure at the Federal level for a nationwide age limit of 21 years.

Epidemiology

Following the drug "revolution" of the 1960s, parents, educators, researchers, and physicians became sensitized to the widespread use of beverage alcohol among youth. Systematic examination of adolescent alcohol use and abuse has increased over the past 15 years. Epidemiological surveys (Abelson et al. 1977; National Institute on Drug Abuse 1979; Rachal et al. 1980) have established that alcohol is by far the most commonly used drug among American youth. In the United States, alcohol consumption appears to be an important issue in adolescent development (Jessor and Jessor 1975; Harford 1976).

A 1978 survey of students in grades 10 through 12 (Lowman 1981, National Institute on Alcohol Abuse and Alcoholism 1981; Rachal et al. 1980) indicated that more than 87 percent of all high school students had tried alcohol at least once; 27 percent were weekly drinkers; and 15 percent were weekly heavy drinkers (i.e., students who reported that they drank at least once each week and consumed from 5 to 12 drinks on each occasion). The level of alcohol consumption, while it appears to be higher than it was 20 years ago, apparently has stabilized during the last decade (National Institute on Drug Abuse 1981).

Apparently, the age at which teenagers begin to drink is dropping, in comparison with earlier generations. Whereas most adolescents started drinking between the ages of 17 and 19 in the 1930s (Glatt and Hills 1968), the median age for initiation into alcohol use a decade later was 14 years (National Institute on Drug Abuse 1979). A recent survey of drug practices among New York City public school children (U.S. Centers for Disease Control 1984) indicated that 28.5 percent of 10th graders (about 15 years old) and 5.8 percent of 7th graders (about 12 years old) said they had used alcohol. It should be noted, however, that drinking during the early 1930s was subject to the constraints of the national prohibition laws.

Another indicator of change in onset of teenage drinking may be the extent of reported drunkenness. In three studies of adolescent alcohol use in the Boston metropolitan area, the proportion of female high school students who reported having been drunk on at least one occasion increased from 14 to 69 percent between 1965 and 1974, while the proportion of male students reporting this had increased from 34 to 70 percent (Demone and Wechsler 1976). These surveys, though, may underestimate the degree of alcohol use, because most studies include only students in school. The supposition that the rate of use may be even higher among high school dropouts and absentees is borne out by one survey that found that absentees consistently had a higher level of alcohol use than did the school attenders; while 58 percent of the school attenders reported that they had used hard liquor, 71 percent of the nonattenders reported such use (Kandel 1975).

Another survey of the prevalence of drunkenness also confirmed the declining age of alcohol misusers (Finn 1979). This study of young people indicated that 25 percent of seventh graders get drunk at least once a year; approximately 10 percent of high school seniors get drunk at least once a week; and nearly 50 percent of college students get drunk at least 12 times a year (Finn 1979).

A caveat should accompany the results of all surveys that are based on self-reports: teenagers, like adult drinkers, are apt to underestimate the degree of their intoxication as well as the frequency and amount of their drinking.

Definitions

Accurate diagnosis of any disorder depends on established criteria that are clearly defined, commonly accepted, objective, and, when possible, quantifiable. In the case of alcohol, currently accepted criteria, as set forth in the third edition of Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association 1980), usually referred to as DSM-III, divide pathological use of alcohol into two categories, alcohol abuse and alcohol dependence.

For a diagnosis of alcohol abuse, DSM-III specifies that a pattern of pathological use has persisted for at least 1 month and that it impairs the individual's social or occupational functioning. These criteria are explained as follows:

1. Pattern of pathological use: need for daily alcohol use; inability to abstain or reduce drinking; periods of attempt at reduction; amnesic periods for events occurring while intoxicated; drinking nonbeverage alcohol; continued drinking despite its association with a serious physical condition
2. Alcohol-produced impairment in social or occupational functioning: missed work; violence associated with drinking; job loss; legal problems; problems with family and friends because of drinking
3. Duration of difficulty: at least 1 month

Alcohol dependence, according to the DSM-III definition, refers to "pathological alcohol use or impairment in social or occupational functioning due to alcohol, and either tolerance or withdrawal" (p. 169). The diagnostic criteria for alcohol dependence include those described for alcohol abuse, with the addition of either tolerance or withdrawal:

1. Tolerance: the need for markedly increased amounts of alcohol to produce desired effects; loss of effect if same amount continues to be consumed
2. Withdrawal: development of symptoms when consumption is decreased or eliminated (sweating, morning shakes, a general discomfort or uneasiness, some depression); reduced by alcohol consumption

Alcohol intoxication occurs when the dose has exceeded normally tolerated blood levels (between 0.05 and 0.15 percent of blood alcohol) or in some individuals at lower levels, referred to as "idiosyncratic intoxication." The intoxicated state is characterized by

1. Maladaptive behavior such as aggressiveness, impaired judgment, impaired social or occupational functioning
2. Physiological alterations such as flushed face, slurred speech, unsteady gait, nystagmus, and incoordination

3. Psychological signs such as loquacity, impaired attention, irritability, euphoria, depression, and emotional lability

While noting that the onset of heavy consumption before the age of 16 years is associated with later alcohol problems, the DSM-III provides no separate diagnostic category for youthful alcohol abuse. It does, however, subsume drinking and other drug use and abuse under the diagnostic designation of "conduct disorder."

Because adult manifestations of alcohol abuse and alcohol dependence can, in fact, follow several years of heavy drinking, they have limited utility when applied to youthful abusers, for whom specific definitions have been suggested. Unger (1978) and Cohen (1981) proposed focusing on the impact of alcohol use on adolescent's peer and family relationships, school performance, and health. (This definition resembles the alcohol abuse category in DSM-III). Cohen uses the term "behavioral toxicity" (i.e., truancy, family disorder, or illegal acts) to characterize the dominant factor in teenage problem drinking.

A clinical distinction has been drawn between early and advanced adult alcohol abusers (Coyle and Fischer 1977; Fischer 1978). Early abusers are said to be characterized by (1) a short drinking history of 1 to 2 years, (2) drinking that occurs in response to or in temporal relationship with a particular emotionally charged or demanding situation, (3) a previous history of nonproblem drinking, (4) no physical dependence, and (5) mild to moderate alcohol-related behavioral problems (e.g., fights, family problems, deteriorating school performance). Advanced abusers are said to be characterized by (1) a pervasive abuse pattern, (2) no clear temporal relationship between drinking and specific stresses, (3) prolonged abuse, (4) presence of abuse from earliest drinking, (5) loss of control over drinking, and (6) marked alcohol-related behavioral problems.

Finally, a survey sponsored by the National Institute on Alcohol Abuse and Alcoholism (Rachal et al. 1980) defined adolescent drinking problems along two dimensions: (1) alcohol consumption, referring to frequency, quantity consumed on each occasion, and frequency of drunkenness and (2) adverse social consequences, referring to self-reports of trouble with school personnel because of drinking, problems with friends because of drinking, driving while drinking, criticism by friends of the person's drinking, and trouble with the police because of drinking. Teenagers who drank at least once per week, consuming five or more drinks per occasion, were considered to be weekly heavy drinkers. Alcohol misusers were defined as youths who had been drunk at least six times or who had had adverse social consequences in three of the five above-noted areas at least twice in the previous year.

Patterns of Alcohol Use in Children and Adolescents

Because alcohol is susceptible to such various modes of use, both drinking patterns and drinking quantity must be considered. Moderate drinking under appropriate social conditions, although not necessarily the dominant mode, is the one sanctioned by most adults in American society. Adults differ among themselves, however, about the specifics. These vary according to the age of the drinker, mores of the subculture, or religious practices. It can be stated as a general proposition that alcohol use by young people under the legal age is permissible only under supervision by parents or other appropriately delegated adult. Under parental control, and for religious or other celebratory reasons, occasional sipping of wine or beer might be acceptable for children over 10 years of age. During high school years, moderate drinking well short of intoxication under supervision by responsible adults other than parents may be acceptable in some localities and under particular circumstances, subject to family approval. In recent years, however, students in some high schools have voluntarily adopted a no-alcohol policy for sports events, graduation dances, and other festive occasions.

Some degree of alcohol misuse, abuse, drunkenness, and dependence can be found at any age, beginning with the youngest users, although patterns of use tend to change. As was indicated earlier, the incidence and frequency of drunkenness tend to increase with age. Peer influences also weigh more heavily than parental influence as the individual matures. Among young adolescents (age 13) drinking is affected primarily by parental standards, in midadolescence (age 15) primarily by peers, and in late adolescence (18.5 years) by both (Biddle et al. 1980; Potvin and Lee 1980).

Physical dependence on alcohol, like physical dependence associated with other drugs, manifests itself in withdrawal symptoms that accompany abstinence. Young drinkers--probably because they have not had enough years of drinking to develop serious physical dependence--usually do not exhibit florid forms of abstinence symptoms, such as restlessness, excitability, hallucinations, and seizures. They may experience only a sleep disturbance. Youngsters who drink heavily on weekends may complain that they are unable to sleep for the first 2 or 3 nights of sobriety, although they do not usually mention this to parents or pediatricians except when asked. Young drinkers, on a lower dose of alcohol than experienced drinkers, can experience the toxic effects of alcohol such as headache (i.e., "hangover"), dizziness, and nausea, but these are not to be confused with abstinence symptoms.

Tolerance, on the other hand, develops fairly quickly and can readily be seen in the frequent drinker. It is also lost quickly, so that occasional drinkers become intoxicated more readily than their more heavily drinking peers and, in attempts to keep pace, may suffer serious effects of overdosage. The rapid development of tolerance also contributes to the pattern of heavy drinking, in that the drinkers who become tolerant as a result of frequent drinking must increase their intake to achieve the same effect.

The tendency for the young, inexperienced drinker to become intoxicated is of great concern, not only because of the danger of an overdose but also because of the circumstances under which this type of drinking occurs. Young teenagers who drink tend to do so outside the home, often in a car, and often with the intention of getting drunk. If they lack experience and have few social constraints or diversions, they may drink rapidly, fail to monitor their state, and quickly lose awareness of how intoxicated they have become. Besides being lighter in weight than adults, hence requiring a lower effective dose of alcohol, they also become intoxicated at lower blood levels than do adults.

Another significant problem related to drinking patterns is the alcohol user's tendency to use other drugs. In one study it was demonstrated that alcohol users are more prone to use tobacco and illicit drugs than are nonusers and also that use of these substances increased proportionately as the degree of alcohol use increased (Kandel 1984a; Milman and Su 1973b).

These drinking patterns have important implications for identifying and managing youngsters who may be at risk for the harmful consequences of drunkenness (e.g., auto accidents, boating accidents, drownings, falls, etc.), multiple drug overdosage, or development of tolerance and dependence. Knowledge of these patterns is important for identifying drinkers and for educating children and parents in the preventive aspects of drug abuse.

Biochemical, Pharmacological, and Physiological Effects of Alcohol

Alcohol diffuses readily across biological membranes. In any given region, the diffusion is determined by the local ionic concentration in body fluids and by the volume of blood flow to that region. Absorption of alcohol in the small intestine is rapid and complete, taking between 2 and 6 hours. (The presence of food retards this process.) Once absorbed, the drug is distributed to all body fluids and tissues, including the brain, where the concentration quickly reaches that of the brain's blood supply.

Elimination of alcohol through the lungs, the sweat glands, and the kidneys accounts for less than 5 percent of total clearance. The major means of removing alcohol from the body is the process of oxidative metabolism. In a series of complex, interrelated enzymatic reactions in the cytosol and mitochondria of liver cells, alcohol is oxidized via several intermediate metabolites. Eventually, through the tricarboxylic acid cycle, it produces carbon dioxide and water (Kalant 1971; von Wartburg 1971).

The rate of alcohol degradation is constant with time, independent of the blood alcohol concentration, but related to the availability of coenzymes and substrate factors needed for hydrogen exchange in the process of oxidative dehydration. In practical terms, this means that there is a limit to the amount of alcohol that can be consumed in a given time without an individual becoming intoxicated, and the competition for these metabolic pathways by other drugs with similar modes of action may result in a potentiating effect.

The acute effects of alcohol on liver metabolism depend on the extent to which the process of alcohol degradation dislocates or encroaches on the normal metabolic pathways. Gluconeogenesis is impaired, for example, and hypoglycemia may be a serious consequence of acute alcohol ingestion in children (Cummins 1961; Moss 1970). Alcohol interferes with lipid and protein metabolism and has an effect on virtually all ongoing metabolic processes, causing derangements with significant potential for damage to the liver, heart, gonads, and central nervous system after chronic, excessive exposure. These problems rarely are seen in children and adolescents, whose exposure to alcohol use is necessarily of relatively short duration (Vingilis and Smart 1981).

Nutritional problems may occur if alcohol becomes a source of energy in the adolescent's diet and thereby displaces nutrients essential for growth, or if appetite is reduced because of gastric irritation. The pregnant adolescent is at high risk for nutritional problems because of the increased needs for her own growth as well as for the growth of the fetus.

The pharmacokinetics of alcohol may be altered in other ways in the pubertal and adolescent individual, owing to the distinctive physical changes of this stage of life, notably an increase in ponderal growth, changes in body composition, redistribution of fat and lean body mass, and increases in circulating blood volume and organ size. These factors, together with the unique drinking practices of teenagers--which can include consuming large quantities of alcohol quickly, drinking without eating, and using other drugs concurrently--have unpredictable and often more intoxicating effects on the adolescent.

The effects of alcohol on the male endocrine system have been intensively studied during recent years, and it is clear that acute and chronic use, over a range of doses and in many animal species, has measurable effects on the hypothalamic-pituitary-gonadal axis that are independent of the effects on liver functions (van Thiel 1983). There is a depression in the elaboration of luteinizing hormone resulting from the action of alcohol on the hypothalamus (Cicero et al. 1979). Testosterone levels are suppressed in response to decreased luteinizing hormone. Alcohol also has a direct effect on the testes, leading to diminished production of testosterone (Gordon et al. 1976).

Less study has been devoted to the female endocrine system, but it has been established that alcohol abuse in women results in severe gonadal failure rather than superfeminization (U.S. Department of Health and Human Services 1984). The symptoms commonly encountered are reduced or absent menstruation, loss of secondary sex characteristics such as breast and pelvic fat accumulation, and infertility. A key factor is the failure of the ovaries to function normally as endocrine producers. Women who have been alcoholic may resume normal menses after a prolonged period of sobriety (Cicero 1983). Alcohol has been shown to inhibit ovulation in rodents, but the mechanism for this is not clear (Eskay et al. 1981; Kieffer and Ketchel 1970; Ryback 1977). In alcoholic women, there also is evidence that brain control over sex hormone secretion is disturbed (U.S. Department of Health and Human Services 1984).

Acute alcohol effects on the endocrine system appear to be reversible when the drug is discontinued. Nevertheless, long-term use of alcohol results in hypogonadism, diminished spermatogenesis, signs of feminization, and decreased reproductive ability in males. To date, nothing definite is known about specific effects of alcohol on the prepubescent or pubescent child or on the young adolescent, male or female.

Of greatest immediate concern for the pediatric age group is the effect of alcohol on the brain. There it acts at a cellular level, producing changes in the biophysical properties of the neuronal membrane that affect neurochemical transmission in ways that ultimately translate into gross neurophysiological and complex behavioral derangements (Kalant 1971, Littleton 1978).

The cortical areas of the brain are the most susceptible to the effects of alcohol, although techniques that record the electrical activity of the brain as an index of its functional activity point to other vulnerable sites as well (Porjesz and Begleiter 1981, 1985). The depression of the integrative functions of the cortex results in varying degrees of impairment of motor and cognitive performance, depending on alcohol dosage. Gross motor activities, fine motor coordination, and articulation are slowed and become inaccurate, random, and less well adapted for accomplishing specific ends. Changes in sensorium occur as blood alcohol levels increase; stupor, coma, and death from brain stem depression may result.

The acute effects of alcohol on cognitive functioning include impairment of attention and concentration, short-term memory, and processing and organization of information (Tharp et al. 1974). Recent studies with nonalcoholic, social drinkers demonstrate decrements in adaptive abilities, concept formation, and the ability to shift from one idea to another. However, small amounts of alcohol taken regularly produce less impairment than the same quantity ingested on a single occasion (Hannon et al. 1983; Parker and Noble 1977; Parker et al. 1982). These findings may have particular relevance for the adolescent who drinks heavily on weekends.

Release from cortical control accounts for the disinhibiting effects of alcohol on emotions and is manifest by wide swings of mood, varying from mild euphoria and excitability to aggressiveness and depression. The practical consequences of these changes are discussed below.

New methods for measuring the anatomical and physiological changes resulting from alcohol use are now available. Studies using computerized scanning techniques, blood flow measurements, and evoked potentials are capable of producing new information without resort to invasive procedures. In the past, only adults have been studied, but it is conceivable that some of these methods soon will be used in studies of children and adolescents.

Psychological Effects of Alcohol

The depressive action of alcohol on the central nervous system of the child or adolescent causes many cognitive and emotional changes. The most prominent cognitive effects are impaired recent memory, attentional and concentration deficits, and difficulties in processing information (Hannon et al. 1983; Tharp et al. 1974). Mental functions are slowed, and judgment and discrimination are dulled. The ability to direct thought along new lines and to reason abstractly is diminished.

Among emotional effects are mood fluctuations, euphoria, dysphoria, and depression. Other emotional responses include anxiety, hostility, and aggressiveness.

The disinhibitory effect of alcohol, which makes the initial effect of mild intoxication so appealing to the young, leads to a wide range of behavioral consequences. These can be influenced by the cognitive effect of poor judgment and the emotional effect of hostility. A consequence of these effects is a host of potential behavior problems.

A consideration of normal child and adolescent development will provide a framework in which to view special psychological effects of alcohol use. For purposes of this discussion, the developmental schemata of Freud, post-Freudian ego psychology (Freedman and Kaplan 1965), Erikson (1963), and Piaget (Ginsburg and Opper 1969) will be invoked. In broad outline, these schemata offer complementary views of the developmental sequence. Freudian psychology and post-Freudian ego psychology address intrapsychic, interpersonal, and instinctual phenomena; Erikson, intrapsychic and interpersonal phenomena; and Piaget, cognitive phenomena. These schemata are somewhat arbitrary, and there is much overlap among them, as well as considerable variation in age of appearance. Also, a child's progress is not necessarily uniform across all of these measures of development. Given that the age of initiation into alcohol use can be as young as 10 or 11 years, knowledge of the developmental phases of late childhood, preadolescence, and adolescence is necessary for understanding how alcohol affects developmental processes (Goldings 1979; Malmquist 1975; Petersen and Offer 1979; Scharfman 1981).

In late childhood, the conflicts engendered by earlier intense parental attachment have been mastered, repressed, or sublimated. Superego functions are being consolidated, especially the inner controls derived from parental expectations and constraints. Ego functions, particularly those of identification with and striving for the ideal, with roots in middle childhood, work to promote self-esteem. In the Erikson formulation, late childhood is a stage of industry, of striving for mastery, and of adhering to the previously learned rules of the game, all of which combine to combat feelings of inferiority and to enhance a sense of worth. In Piaget's schema, the child is in a stage of concrete operations. By this, Piaget means that the child's thinking becomes objective as well as intuitive, with a capacity to change perspective to fit the demands of an external reality, to appreciate more than one dimension of a problem, and to detach one's self from what is observed. This ability to detach in a cognitive sense, to view an action from a different perspective, becomes the basis not only for cognitive learning but also for moral judgment. In sum, late childhood is a relatively unconflicted stage emotionally, with early childhood tensions facilitated, and with an active, even accelerating push toward learning and accomplishment.

Introduction of alcohol at this stage can disrupt both emotional equilibrium and intellectual striving. The problems of concentration and attention dampen the normal efforts at mastery and achievement. The cognitive effects of impaired memory and information processing serve to augment the attentional deficits. Thus, the normal, goal-oriented, achievement-oriented stage is foreclosed by lack of will and lack of capacity. Lack of achievement, in turn, leads to failure to reach one's ego ideal, with consequent loss of self-esteem and loss of interest.

At ages 12, 13, and 14, which correspond to school grades 7 through 9, developmental phenomena are in a far more dynamic phase than in childhood, hence disruption has more telling effects. From Freudian and post-Freudian perspectives, young adolescents are beginning to separate themselves from family and to assume a self-defined sense of identity. This process involves disengaging from childhood attachments, childhood ego ideals, and hitherto accepted parental values. Hence, new relationships, ideals, and values are developing. Necessarily, the process spans several years and absorbs vast amounts of the adolescent's energies. In terms of psychosexual development, the individual has gone through oral, anal, and phallic stages and then been given a moratorium during latency. What now emerges is specifically genital sexuality, driven by hormonal output.

In the Erikson formulation, the stages of early and midadolescence are marked by acquisition of a stable sense of identity. If this fails, the individual experiences confused and shifting identities, a phenomenon Erikson calls "ego diffusion." In Piaget's theory, these years mark a dramatic cognitive shift from concrete operations to formal operations. Another term for this latter process is abstract thinking, which is characterized by the ability to think in terms of possibility as well as of present reality, to deal with multiple possibilities while holding a single factor constant, to combine possibilities, and to generate hypotheses. This capability to manipulate abstract ideas facilitates deductive reasoning, scientific experimentation, assimilation of new ideas, philosophizing, and political theorizing--in fact, the full range of adult forms of sophisticated thought. It is a process that begins in preadolescence, proceeds throughout adolescence, and involves a major cognitive structural reorganization.

Referring again to psychological effects, one now can infer the impact of alcohol on adolescent development (Nystrom et al. 1979). Cognition, clearly, is highly vulnerable (Hannon et al. 1983). The acquisition of skills and the mastery of new material, so important to the individual's self-esteem and academic progress, would be hampered by the drug. Moreover, because the critical transition must be made from concrete to formal operations, a drug that impairs thought processes, integrating ability, judgment, and discrimination, would compromise that transition. A decline in academic performance is an objective measure of the drug's effect. The acquisition of new information would be impaired, as would the type of learning that requires abstract reasoning in mathematics, scientific theory, or the humanities.

Thus, academic achievement that requires anything beyond rote learning would be impeded. Academic incapacity, in turn, would lead to loss of self-esteem and ego competence.

Abstract reasoning, which enables one to weigh alternatives, to think in reversible terms, and to make moral judgments, plays an essential role in restructuring the superego and generating an independently determined value system. Failure to develop a serviceable value system can lead to serious conflicts and dislocations.

The process of separation from parents, with development of a new ego ideal and a new sense of identity, requires new attachments and affiliations. The person whose alcohol use causes loss of inhibition and leads to socially inappropriate behaviors has difficulty with developing and maintaining friendships. This inability to form meaningful new attachments may result in self-absorption and isolation. It can delay or altogether inhibit the development of a stable sense of identity.

Another normal feature of the parental separation process and the drive toward independence is oppositional, sometimes hostile, behavior. When adolescents' alcohol use places them at odds with parental standards, the alcohol-related behavior can become the focus of severe discord. The separation process then becomes complicated by guilt and sharp differences. The young person, interpreting parental criticism as rejection, may respond with withdrawal, narcissistic preoccupation, and regression. Alienated from parents, burdened with guilt, and tenuously affiliated with peers, such an adolescent is highly vulnerable to the development of psychopathology.

Strengthening gender-appropriate psychosexual identification and achieving satisfying heterosexual attachments and functioning are tasks of later adolescence, beginning in the middle teenage years and extending into early adulthood. Early adolescence is accompanied by heightened sexual drive and heterosexual awareness, but acting out is usually limited to masturbation, sexual talk, fleeting attachments, and crushes. These tentative activities come into sharper focus in midadolescence in the form of varying degrees of sexual exploration and experimentation, and in temporary romantic attachments in which the beloved is idealized or is perceived as an extension of self. The goal is more one of self-gratification than of sharing. In late adolescence, sexuality and emotional attachment become fused in a relationship of mutual concern, sharing, and intimacy. This last phase is the prelude to a mature, heterosexual, lasting adult attachment.

Alcohol can prove highly disruptive to this important developmental task. Not only do the weakened adolescent ego and the tenuous sense of identity interfere with establishing a strong gender identity, this failure, in turn, inhibits heterosexual attachments. One result can be a formless groping, expressed either as promiscuity or as shifting bisexuality. For those adolescents who are insecure or are frightened of their sexual impulses, alcohol is employed for its disinhibitory effect in overcoming self-consciousness and inhibition or, alternatively, for dampening sexual drive (Milman, unpublished data).

The total impact of these effects of alcohol on the developmental process is greater than can be appreciated by separately analyzing the various components. There are distortions and disruptions, but there is also omission of a vital, active engagement in the process of growing up--a failure to experience suffering, to come to grips with anxiety, to tolerate ambiguity, frustration, and postponement. Thus, the individual emerges from adolescence without having experienced it, without having addressed its tasks, without being able to carry into adulthood the legacy of conflicts resolved, obstacles overcome, fears conquered, social skills mastered, values defined, and relationships enriched.

Psychological Factors of Alcohol

The process by which young people become alcohol users is of particular importance to pediatricians because most individuals have their initial experience with alcohol during adolescence and sometimes even earlier. There are many views and theories regarding initiation into and continuance of drinking. Those that concern the pediatrician are the sociocultural, intrapsychic, environmental, and parental factors.

Social learning theory has been advanced by psychologists and sociologists to account for the mode by which customs and habits are transmitted (Bandura 1977; Collins and Marlatt 1983; Miller 1979). According to this view, an individual acquires, through observation, group affiliation, and modeling, certain attitudes, behaviors, and practices. Among these are tobacco smoking, alcohol consumption, and drug use.

According to social learning theory, children observe adults using alcohol, associate drinking with adult status, and perceive drinking as an adult social activity (Maddox 1962). Thus, an accepting attitude toward alcohol use can emerge as early as 6 years of age (Jahoda and Cramond 1972; Zucker 1979). Such attitudes, if later strengthened by peer pressure in favor of drinking, facilitate initiation into alcohol use. Indeed, a receptive attitude, combined with the belief that this is accepted adult behavior, is the reason that learning to drive or to smoke tobacco or marijuana becomes a *rite de passage* for American youth exposed to these practices (Jessor and Jessor 1975). Unlike learning to smoke or to use illicit drugs, however, development of drinking behavior usually occurs with parental sanction, in that parental permission and guidance in alcohol use are often part of the learning process (Barnes 1981; Mandel and Ginzburg 1976). That is, older children and teenagers are likely to experience their first encounter with alcohol in the home, in the company of parents, and as part of a family activity (e.g., special celebration, religious rite, or festive occasion).

Although social learning theory is useful in explaining initiation into social drinking, it does not sufficiently illuminate the problem of immoderate drinking, or the continuance of drinking despite awareness of deleterious effects, or the factors that predispose to alcohol abuse.

There is much clinical experience regarding these issues and much current research, although very little on adolescents and children. Thus, we draw chiefly on the adolescent psychiatric literature dealing with the adolescent condition, the social milieu, and family circumstances (Nystrom et al. 1979). In addition, we attempt to extrapolate from adult alcohol studies to children (Collins and Marlatt 1983). Recent publications that have received much attention were based on longitudinal studies (Vaillant 1983). These suggest that personality changes such as low self-esteem and depression result from drinking rather than causing it in alcoholic men. Although interesting and provocative, these findings are of limited value to pediatricians who are necessarily concerned with the events that precede and contribute to alcohol abuse.

Intrapsychic factors can be classed as individual personality characteristics or age-related developmental characteristics (Nystrom et al. 1979). Despite attempts to identify certain personality types as predisposed to alcohol abuse, there is no research evidence to date that definitely establishes such a causal connection. Personality characteristics that appear to be predisposing are emotional factors such as insecurity, low self-esteem, anxiety, and depression, singly or in combination. These are seen as possibly overwhelming an immature person's coping skills, thus making it difficult to resist temporary relief in the form of alcohol consumption.

Other potentially predisposing factors have been suggested: personality-related tendencies to take risks, to disregard consequences of one's behavior, to orient only toward the present, and to insist on immediate rather than delayed gratifications. These attitudes are characteristically displayed by many adolescents at certain developmental stages and are not necessarily indicative of a basic personality disorder. At times, however, such tendencies can render the adolescent more vulnerable than usual to overindulgence in alcohol consumption.

As in adults, the passive-aggressive personality is a problem in adolescents. If confronted with the issue of alcohol abuse, such a person has difficulty cooperating with authority; there is neither complete acquiescence (which might feel "weak," nor outright opposition, which might invite rejection or engender guilt feelings. Instead, an underlying negative attitude is masked by outward compliance, but the individual unaccountably "forgets" or neglects responsibilities. If the desire to retaliate against authority exceeds a passive-aggressive person's ability to contain hostility or to seek more constructive outlets, alcohol may be used to neutralize anger and, simultaneously, to act out defiance.

Sexual anxiety is another feature of the adolescent condition that demands relief. This anxiety appears in many guises: concern about one's physical attractiveness, fear that heterosexual performance problems signify homosexuality, belief that an insufficient sexual interest indicates "abnormality," or guilt over sex-related interests. Alcohol works in two quite opposite ways to affect this complex array of related anxieties. The immediate effect of relieving inhibition and reducing self-consciousness is to facilitate social interaction, sexual approach, and performance. Loss of inhibition also dilutes homosexual anxiety, enabling a degree of experimentation whereby the young person can either confirm or disprove a homosexual orientation. Prolonged or excessive alcohol use, on the other hand, reduces drive and leads to impotence. Thus, alcohol can play a protective role by providing respite from facing a painful issue.

These are some of the commonly observed personality and situational factors that seem to interact with each other and with the disinhibitory and antianxiety properties of alcohol. We now must consider some of the factors that appear to promote continued abuse, despite such unpleasant reactions as slurred speech, dizziness, impaired motor coordination, and nausea, and despite awareness of other deleterious effects. First, there is the feeling of invulnerability; the adolescent usually does not consider the possibility of self-harm or believe that he or she will ever grow old, let alone die. Thus, it is possible to practice an extraordinary degree of denial. This denial is well illustrated by the fact that the user does not acknowledge temporary incapacity, excessive or inappropriate drinking, or impairment of school performance or social relationships. Often this denial is supported by drinking companions, who are practicing a similar sort of self-deception.

A second incentive for continued use is the antianxiety effect. Drinking provides temporary relief, but its is followed by self-recrimination either for having gotten drunk or for neglect of school work or other responsibilities. These feelings are complicated by parental disapproval. All of this leads to feelings of anger and guilt, resulting in more anxiety, which requires further resort to alcohol for relief. Thus, a circular pattern of need-use-need is set up.

A similar, self-reinforcing pattern is set in motion when alcohol is used to combat depression. Unfortunately, after an initial euphoriant effect, alcohol itself produces depression, a depression that may be more severe than the original depressed state. This, in turn, leads to continuing use to relieve the alcohol-induced depression, often with the addition of such drugs as cocaine or amphetamines for their specific antidepressant properties.

Peer pressure--combined with other adolescent behavioral characteristics such as risk taking, the tendency to go to extremes, and impulsivity--leads to the particularly dangerous phenomenon of multiple and indiscriminate drug use. Adolescents are noted for the number of drugs they use (Pollin 1981), for their tendency to experiment with alcohol in combination with marijuana or other drugs, and for their paradoxical willingness to accept a friend's recommendation regarding drugs in contrast to their suspicion of a physician's medication prescription.

The general sociocultural factors associated with drug use already have been referred to above and will not be recapitulated here. Attention will be directed instead to particular characteristics of the adolescent condition that interact with the cultural milieu to promote alcohol and drug use. In American society, peer influences are much more powerful after puberty than are home and family values. In breaking away from family, the adolescent seeks other sources of support, usually from age mates, to fulfill dependency needs, to provide reassurance, and to bolster self-esteem. The passport of entry into this peer support group is adoption of the group's mores in dress, recreation, likes and dislikes, and values and beliefs. Thus, if alcohol, cigarettes, marijuana, or another drug is what the group is "doing," then the newcomer will seek acceptance by doing the same. Alcohol use is further rationalized by the knowledge that it is commonplace in the adult world, with little or no deleterious effects for the majority of adults.

Other sociocultural reinforcements come from examples set by older adolescents and young adults. As social learning theorists point out, these provide models for younger observers. For youngsters in general they represent the entire range of possibilities for alcohol abstinence, moderate use, or misuse. Individual circumstances determine which attitudes the developing child and adolescent will be exposed to. In addition, parents, teachers, and significant other adults actively discourage or encourage alcohol use by adolescents and younger adults. In some cases, even a pediatrician may permit alcohol use as a usual, essentially harmless, temporary phase of growing up. Altogether, decisions must be made as to the powerful effects of adults as role models before one can expect young observers to adopt healthy practices.

Parental influences that may contribute to immoderate drinking by children and adolescents include lack of supervision; emotional or physical unavailability; and abuse by parents themselves of alcohol, illicit drugs, or prescription drugs. Family situational factors that can contribute to problem drinking include discord, divorce, and parental absence or loss. Other types of parental inadequacy such as lack of involvement, distrust, and rejection (Offer 1969; Offer et al. 1979; Zucker 1979) also can have similar effects.

Parental factors may be contributory in a genetic sense as well as situationally. Sons of alcoholic fathers appear to have a fourfold likelihood of becoming alcoholic, whether raised by foster parents or by natural parents (Goodwin 1981). Many studies confirm a familial pattern in alcoholism, although the exact nature of what is transmitted is still not clear (Begleiter et al. 1984; Cotton 1979). It is known, however, that the offspring are at increased risk not only for alcoholism but for developing it at an earlier age and having alcohol use be symptomatic at an earlier age.

Adolescent problem drinkers manifest associated behaviors and attitudes that differentiate them from the nondrinking high school student (Jessor and Jessor 1975) and the college social drinker (Milman and Su 1973b). In comparison with nondrinking peers, these problem drinkers in general are less conventional, take less interest in school, achieve less academically, are more peer oriented than family oriented, have more friends who drink, and are more sexually active (Kandel 1978; Milman and Su 1973a). They also are involved in abuse of other drugs and other forms of antisocial behavior, even when not drinking (Globetti 1977; Kandel 1984a; Mandel and Ginzburg 1976). Indeed, were it not for the pharmacological consequences of alcohol, it could be more appropriate to regard adolescent alcohol abuse as merely one manifestation of maladaptive behavior rather than as a distinctive entity.

Relatively little systematic study has focused on nonusers of alcohol. When compared with peers who use alcohol, nonusers are found to (1) be more academically oriented and less socially adventurous, (2) identify themselves more closely with parental values, and (3) have fewer psychological problems. One may infer that the youngster who is not drawn into inappropriate alcohol use has ego strengths and self-esteem that are sufficiently sustaining. The person who voluntarily discontinues misuse without intervention probably has acquired similar qualities and has usually experimented without becoming a committed drinker. Such an individual may have experienced an unpleasant reaction or failed to derive the sought-for feeling of well-being. And, like the committed nonuser, he or she has interests, strengths, and resources that are sufficiently sustaining.

Treatment

Recognition and identification. To identify all departures from normal functioning, whether physical or behavioral, the pediatrician depends on prior knowledge of the child as well as on current inquiry. With regard to alcohol problems, as with drug abuse or adolescent pregnancy, the first step toward recognition is awareness of the possibility. With the knowledge that alcohol use is prevalent in adolescence and even earlier, the pediatrician is able to direct the questioning appropriately. The task in identifying a problem is aided by knowledge of such risk factors as parental discord or alcohol abuse and of such behavioral indicators as academic difficulties or association with alcohol and drug-using friends or unexplained moodiness.

The next step is to ascertain the extent and the nature of the problem. Pediatricians rarely have 18-year-olds as patients. If the minimum age for alcohol consumption is 18 years or above, a pediatrics patient below the legal age is clearly breaking the law when drinking an alcoholic beverage. The setting and the family standards must be taken into account before proceeding to intervene. If the family maintains a total-abstinence standard, and the patient who wishes to comply with this is being pressured by peers to join them in drinking alcohol, that is another set of circumstances. Yet another possibility is that the parents consume alcohol, but the young patient wants to abstain and is confused by the parents' behavior. In any event, it is up to the physician to learn what the expectations are in each case and to make appropriate recommendations accordingly.

Counseling by the pediatrician. If there is, indeed, a drinking problem present, the pediatrician may elect to discuss this with the young patient, but not without first consulting the parents. It also may be considered advisable to discuss alcohol consumption and its consequences with youngsters who choose not to partake, if their parents know that this is planned. In any case, the purpose is to educate the patient in the risks, both physical and social, associated with alcohol consumption in youth. This can be done in the context of a more general discussion of adolescent problems perhaps more easily than in the context of individual adjustment problems. Such decisions must be made on a case-by-case basis. The same is true for involving the parents; they may meet separately with the physician, or the discussions may be designed to take place in a family group setting.

Referral. Care of the youngster who is clearly drinking immoderately is usually beyond the scope of the pediatrician. Once the decision to refer has been made, it must be presented to the patient and the family in a form that is acceptable. The pediatrician may have to overcome resistance on the part of the patient or family or both. Denial, the most common defense of the drinker and of the family, is a powerful obstacle and not easily overcome, particularly if there is a family history of drinking or if one of the parents drinks. Several meetings with the family may be required or a serious untoward event may have to occur before resistance to accept a referral is overcome. For a referral to be successful, the pediatrician must be clear on several points: why the referral is needed, what the expected outcome will be, and what adverse effects may ensue if no action is taken.

Treatment modalities. The specifics of treatment are beyond the scope of the student or pediatrician, but he or she needs to know about indications, general principles, different treatment options, and community resources to make an appropriate referral and to monitor the progress of treatment. The basic treatment modalities are individual psychotherapy, group therapy, family therapy, placement in a residential community, and hospitalization. The choice of treatment depends on individual and family factors and on whether the problem is alcohol alone or alcohol in combination with other drugs.

If the primary problem is a preexisting disorder, but the young person is not especially articulate or introspective, the most comfortable choice might be group therapy, where others in the group can speak out about thoughts and feelings for which the youngster cannot find expression (Jalali et al. 1981). Moreover, peer pressure of the group can be used constructively in support of giving up the use of alcohol.

The form of group therapy that is best known, because of both its effectiveness with adults and its favorable publicity, is Alcoholics Anonymous. It has the drawback, however, of being oriented toward adults in its conceptualization and style (Settli and Sherman 1982). Furthermore, most of the groups are composed of adults, many of whom are middle-age or older; adolescents may find little in common with them and, indeed, may feel alienated and antipathetic. In some communities there are Alcoholics Anonymous groups primarily or solely for the young. If the youngster is using other drugs as well as alcohol, he or she can be referred to an adolescent drug treatment resource, of which there are many in urban communities (U.S. Department of Health and Human Services 1983).

If problems of impulse control and related antisocial trends dominate the clinical picture, or if the family dynamics appear to be overwhelming or threatening, residential care in a drug- or alcohol-free community might be the treatment of choice (DeLeon and Rosenthal 1979). If the problem is identified as arising from family interactions rather than from the individual, then therapy addressing the family's malfunctioning would be more appropriate.

The sine qua non for successful treatment, as with any drug, is to achieve an alcohol-free state as early in the course of treatment as possible, because no meaningful therapy can be accomplished with a drinking patient and also because alcohol itself is capable of inducing psychological disorders. Thus, the patient must be studied in an alcohol-free state for a sufficiently long period before one can differentiate the youngster with a significant preexisting vulnerability or an underlying psychiatric disorder from the essentially normal adolescent whose deviance is primarily alcohol related. If an alcohol-free state cannot be achieved by voluntary compliance, parental controls, or group pressure, or if the psychological problem is so severe as to preclude meaningful evaluation and therapy, then a period of hospitalization in a protected environment may be necessary.

Any of these approaches would involve a high degree of parental involvement, with or without family therapy, since parental support, understanding, and control are important in seeing the young person through a difficult time. Another modality for parents is Al-Anon, the companion group to Alcoholics Anonymous, designed to serve families of alcoholics. Within a group setting, Al-Anon provides support, insight, and a sharing of management strategies.

The threefold aim of therapy, by whatever modality, is to enable the patient to (1) become alcohol-free and accessible to treatment, (2) deal with conflicts and anxiety in more appropriate ways, and (3) reexperience some of the necessary maturing processes that he or she may have been unable to negotiate while using alcohol. As with the treatment of any drug dependency, prolonged aftercare or supervision may be necessary to ensure against relapse. The ultimate goal is to enable the youngster to resume developmental momentum and complete the unfinished business of growing up.

Prevention. As with so much in the practice of medicine, prevention of alcohol abuse, if not always easy to achieve, is the primary goal. Because learning plays a role in drinking, those who are in a position to instruct the child have an obligation to do so. Ideally, everyone should learn why and how people drink alcoholic beverages and how to do so without getting intoxicated. The child who is permitted to drink, under parental supervision, needs to know how to recognize the earliest subjective feelings of intoxication and to understand that intoxication is not the goal of drinking. In addition, the child who chooses never to drink may need educational and emotional support as well.

The adolescent of 14 or 15 is at a more advanced stage of cognitive development than the younger child and therefore is in a position to discuss immoderate drinking in terms of present dangers and later complications. Now able to deal with abstractions and possibilities, the adolescent can evaluate behavior in terms of ethics, values, and choices. Discussions at this stage of development are rehearsals for the time when parental constraints are no longer being imposed and the young person must assume responsibility for the consequences of his or her actions.

Discussions of this sort, involving consequences, responsibility, and value judgments, need not be limited to alcohol use but can be introduced properly in the context of other adolescent concerns such as drugs, driving, and sexuality. For many adolescents, and for their parents as well, the pediatrician should deal with these issues in a setting that is not emotionally charged and not liable to evoke hostility or defensiveness.

Whether some or all of the teaching is done by parents, the pediatrician is in a position to raise appropriate issues with the parents in anticipation of each stage of the child's development. Pediatricians are well schooled in offering anticipatory guidance concerning infants and young children; so also with older children and adolescents, the physician needs to prepare parents in advance for problems that may arise. Because parents dealing with their oldest adolescent lack firsthand experience with these problems in contemporary society, the pediatrician's guidance is particularly important.

Education is accomplished not only at the level of individual child and individual family but also at the level of school and community. Pediatricians are accustomed to participating as health educators but may need to be reminded to include alcohol and problem drinking in their curriculum of community education. In fact, the American Academy of Pediatrics states its position on alcohol very clearly, making two points regarding education of the public: (1) adults and children should perceive alcohol as a nonmedical drug and (2) the curriculum on education about drugs in schools and in the health professions should include alcohol.

Because some children are known to be at high risk for the development of alcohol problems, special preventive measures should be undertaken in their behalf. Risk factors include a family history of alcoholism and especially of parental drinking (Goodwin 1981; Tanna et al. 1977; Wilson and Orford 1978); adolescent depression or a family history of depression (Cadoret et al. 1977; Chiles et al. 1980; Morrison 1975; Tennant et al. 1975); a history of minimal brain dysfunction syndrome in childhood (Tarter et al. 1977); evidences of antisocial personality disorder; association with friends who drink or use drugs; and family discord or divorce.

Ideally, intervention should be undertaken before an overt problem develops. Such intervention can take the form of counseling, individual therapy of child or parent, group therapy, or family therapy. If there is a drinking problem in the family, recourse to Al-Anon for parents or Alateen for youngsters may be the appropriate strategy.

Chapter 4
Related Drug Issues

Combined Alcohol-Polydrug Use

The current tendency of adolescents to combine alcohol with other drugs exposes them to such additional hazards as drug synergism, deleterious effects, multiple drug dependencies, and increased risk of an overdose.

The drugs of abuse, other than alcohol and tobacco, are all either illicit or psychotherapeutic drugs, self-prescribed for nonmedical purposes. After marijuana, which is the most widely used illicit drug, the following classes of drugs are self-administered, in order of prevalence:

- Stimulants (including cocaine, amphetamines, methylphenidate)
- Tranquilizers (methaqualone, diazepam)
- Sedatives (barbiturates)
- Hallucinogens (LSD, mescaline, phencyclidine)
- Inhalants (toluene, carbon tetrachloride, gasoline)
- Opiates (heroin, methadone, propoxyphene)

(National Institute on Drug Abuse 1979)

A further point should be emphasized regarding the hierarchy of drugs used. Epidemiological studies (Kandel and Faust 1975) have shown that high school students progress through four stages of drug use: (1) beer or wine, (2) cigarettes or hard liquor, (3) marijuana, and (4) other illicit drugs. Stages 1 and 2 are likely precursors to marijuana use. Twenty-seven percent of students who smoke and drink progress to marijuana use, compared with 2 percent of those who engage in no prior use of legal drugs (Kandel 1975; Kandel 1984). Moreover, marijuana use is a critical step toward other illicit drugs, with 26 percent of marijuana users taking up self-administration of LSD, amphetamines, or heroin, compared with 2 percent of those who use legal drugs. In a recent followup study, a fifth stage of drug use was identified: prescribed psychoactive drugs. Early users of marijuana were twice as likely as nonusers to progress to this prescription stage (Yamaguchi and Kandel 1984).

For the pediatrician, the important facts are that (1) fads in alcohol and drug use change; (2) young people are prone to experiment; (3) risk-taking youths are concerned only with sensation, not consequences; (4) more boys than girls use "other" drugs and combinations of drugs; and (5) alcohol and drug use is beginning at younger ages, which puts these agents into the hands of those with the least discrimination and the most immature judgment. When risk taking, immaturity, and emotional lability are combined with multiple drugs and alcohol use or with indiscriminant use, the results can be very serious, even fatal. Vehicular accidents, suicide, and homicide, together the leading causes of death in the 15- to 24-year age group (U.S. Bureau of the Census 1980), are often associated with drug and alcohol use (Milner 1977).

Management of Acute Intoxication and Untoward Reactions

Acute alcoholic intoxication is not an uncommon occurrence in the young, inexperienced drinker who either deliberately plans to become intoxicated, engages in a drinking competition, or is trying to display "manliness." The hazards for this form of drinking include vehicular accidents (as driver, passenger, or pedestrian), acute gastritis, aspiration problems secondary to vomiting, respiratory depression, and death from respiratory arrest or choking.

The statistics on the role of alcohol in vehicular accidents are well known (Robertson and Zador 1979; Rosenberg et al. 1974). The data on inadvertent death are less firm, but newspaper reports of sporadic deaths from rapid, excessive drinking at fraternity initiation rites are tragic, however infrequent. Unfortunately, many of these untoward events do not come to parental or medical attention in time to institute life-saving measures. This is doubly tragic because, in virtually all instances, the central nervous system (CNS) depressive effects are self-limited and the only medical problem is maintaining airway patency and respiratory function until the patient spontaneously recovers.

On the other hand, multiple drug use may constitute much more of a challenge because the patient's clinical presentation may be in the form of an acute toxic psychosis. Differentiation from idiopathic acute psychosis can be difficult, because the symptoms of both types of psychosis are the same (disorientation, hallucinations, anxiety, fearfulness, and combativeness), with the exception that in toxic psychosis the hallucinations are visual and in idiopathic psychosis they are auditory.

The first step in management is recognition that one is dealing with an adverse drug reaction, which may constitute both a psychiatric and a medical emergency. Recognition is not difficult if one keeps this in mind when a child presents with one or more of the following psychological symptoms:

- Acute agitation
- Disorientation
- Somatic delusions
- Paranoid delusions
- Visual hallucinations
- Panic
- Unmanageable hostility

Physical symptoms, which may occur in the absence of or subsequent to psychological aberrations, include drowsiness, lethargy, somnolence, stupor, convulsions, and varying degrees of coma.

Because the psychological picture may be a prelude to alteration in sensorium and progressive CNS depression, the patient should be dealt with medically as if CNS depression were pending. That is, ingestion must be suspected and the stomach must be emptied, vital signs monitored, and an attempt made to calm the patient with verbal reassurance and, if necessary, use of restraints. Antipsychotic medication is not recommended unless one can be confident knowing which drug or combination of drugs has been ingested, because such medication may further complicate existing neurophysiological derangements. For CNS depression, standard monitoring and support measures should be instituted promptly, preferably in an intensive care setting.

Stomach contents, urine, and blood must be screened for all the usual drugs, including alcohol. Treatment of overdosage for specific drugs has been standardized (Bourne 1976). If specific knowledge is not readily available, telephone consultation with the local poison control agency will provide information.

Pending chemical reports, every effort must be made to obtain an accurate drug history. However, the patient is usually not capable of responding, friends may fear reprisals for being involved in illicit activities, and the parents may be uninformed. Persistent inquiry may encourage parents to seek information from the child's associates. Alternatively, the pediatrician may approach the patient's friends, using his or her understanding of young people to encourage their confidence.

On recovery (and most reactions are resolved within 48 hours), the child must be dealt with sympathetically and compassionately to ascertain which substances have been used, and, more important, why. Accidental overdose requires an approach different from that used for a suicide attempt. The pediatrician must be aware of depression as a motivation for and a consequence of this type of alcohol/drug use. Pursuit of these issues is essential to development of an appropriate treatment plan. Finally, no treatment is complete without specific plans for aftercare.

The Pregnant Adolescent Drinker

Definition of the problem. Increasing alcohol use and the rising incidence of adolescent pregnancy have contributed to an increased number of pregnant teenagers at risk for a variety of serious problems for themselves and for their unborn offspring. The two factors that endanger the adolescent and her baby--her use of alcohol during pregnancy and her youth--are so closely interrelated and mutually enhancing that it is difficult to consider them separately.

In the section on fetal alcohol syndrome, the dysmorphic, mental, and behavioral effects of alcohol on the fetus exposed prenatally are described; here are emphasized the timing of exposure and the quantity of intake. Both factors appear to have an adverse effect on the fetus in that the earlier in pregnancy the embryo/fetus is exposed to alcohol and the larger the dose, the greater the potential for teratogenicity (Hanson et al. 1978). The sexually active adolescent, who usually is so unaware of the possibility of becoming pregnant that she often fails to recognize the signs of early pregnancy, may be placing her baby at considerable risk of impairment if she continues to drink at the time of conception and during pregnancy.

The likelihood of maternal and fetal complications during adolescent pregnancy is increased by physical immaturity. Particularly among the poor, blacks, and those under 15 years of age, gestational problems such as pregnancy-induced hypertension, cephalo-pelvic disproportion, and abruptio placenta occur more frequently than they do among older women (Dott and Fort 1976; Duenholter et al. 1975; McAnarney et al. 1978). Fetal problems of the child born to the adolescent include prematurity, fetal distress, neonatal depression, and an increased incidence of neurological deficits (National Institute of Neurological Disease and Stroke 1973), even without the addition of alcohol. With alcohol, these effects are additive.

Nutrition during pregnancy presents a special problem for the pregnant adolescent. She needs added nutrients (protein, calcium, iron, trace minerals, and vitamin supplementation) beyond that of the adult gravida because she still has the obligation to meet her own growth requirements. Adolescents are notoriously negligent of their diet, owing to food fads, irregular eating habits, and capricious tastes. This dietary indiscretion is compounded when alcohol is used because of the propensity for the drinker to eat less and eat more erratically.

The additive factor of multiple drug use, to which the adolescent is especially prone, compounds the hazards of adolescent pregnancy. Note should be made that alcohol and illicit drugs are excreted in breast milk and can adversely affect the baby who is nursed (Binkiewicz et al. 1978).

For the adolescent, the social and economic consequences of her early pregnancy constitute the most difficult aspect of the problem. Ill-prepared for any career, because of her failure to complete her education, and poorly equipped for mothering any child, much less one with potential developmental problems, the teenager is seriously burdened and handicapped.

Management. With early diagnosis of pregnancy and the initiation of comprehensive, consistent prenatal care, the course and outcome of pregnancy for teenagers over 15 years of age can be comparable to that of adult women (Regan and Schneider 1978). Prevention, early identification, and early prenatal care are the goals to be sought. Indeed, avoidance of adolescent pregnancy is the primary preventive measure.

To meet the growth needs of maternal and fetal tissues as well as her own needs for adolescent growth and maturation, the pregnant teenager will require a diet that includes optimal protein and ensures an adequate weight gain. Supplemental vitamins and minerals are also indicated.

Adolescents are notoriously resistant to enforced compliance that requires an element of self-governance, whether involving alcohol and drug abstinence, dietary control, or medication or clinic attendance. Thus, the combined efforts of obstetrician, pediatrician, and alcohol or drug treatment center, along with the support of the family, clearly are necessary if any success in management is to be achieved. Even with optimal medical care and family cooperation, the outcome can be unpredictable.

The Fetal Alcohol Syndrome

Alcohol is acknowledged to be a significant fetal teratogen. Many references to the adverse consequences of alcohol ingestion during pregnancy can be found, dating back to antiquity (Warner and Rosett 1975) and leading to recognition of the distinctive pattern of anomalies that constitutes the fetal alcohol syndrome (Jones et al. 1973).

Since 1973, the teratogenic effects of alcohol have been documented in numerous reports (Clarren and Smith 1978; Hanson et al. 1978; Streissguth et al. 1980), and similar patterns of malformations have been produced in animals exposed to alcohol in utero (Chernoff 1977; Ellis and Pick 1980; Randall and Taylor 1979). Further evidence that alcohol use during pregnancy is harmful is derived from epidemiological studies that point to an alcohol-increased incidence of fetal growth retardation, congenital anomalies, and prenatal and perinatal obstetrical complications (Ouellette et al. 1977; Sokol et al. 1980).

The characteristic features of the fetal alcohol syndrome include prenatal onset and persistence of growth retardation in length, weight, and head circumference; CNS dysfunction with mild to moderate retardation and neurological and behavioral deficits; and a recognizable pattern of craniofacial dysmorphic features. Other associated major and minor cardiac (Loser and Majewski 1977; Sandor et al. 1981), skeletal, renogenital, cutaneous, and muscular abnormalities can occur.

However, in the expression of the effects of alcohol on the fetus, there is wide variability, related to the dose of alcohol and the gestational timing of exposure (Hanson et al. 1978). The full expression of the fetal alcohol syndrome represents one extreme in the spectrum of teratogenic effects of alcohol. The problem includes the more subtle signs of neurodevelopmental dysfunction, manifest by deficits in attention and concentration, hyperactivity, maladaptive behavior, and learning problems. All of these may occur in the absence of clinically discernible dysmorphic features and represent milder degrees of impairment than frank mental retardation (Dwyer et al. 1978; Shaywitz et al. 1980; Streissguth et al. 1978).

Anatomical correlates of these CNS effects have been demonstrated in animals and humans exposed to alcohol in utero. Failure of brain growth and neuropathological evidence of extensive brain disorganization have been found in infants of alcoholic mothers (Clarren et al. 1978). The effect of alcohol on the behavior of small mammals (Freund and Walker 1971) and of humans (Shaywitz et al. 1980) is consistent with a more general experience, that drugs affecting CNS function in mothers impair adaptive behavior in offspring (Voorhees et al. 1979).

Lack of reliable data on the safe level of alcohol consumption during pregnancy and knowledge of the potential for harm from its use support the recommendation for abstinence during pregnancy or in anticipation of conception (Hanson et al. 1978).

A neonatal abstinence syndrome, manifest by restlessness, tremulousness, disturbed sleep, and other maladaptive behavior, is the consequence of two different processes: (1) acute withdrawal and (2) the chronic insult of alcohol to the CNS. Acute withdrawal causes excessive motor activity, irritability, gastrointestinal symptoms, and poor nutritive sucking (Pierog et al. 1977). Management of the affected newborn, therefore, requires attention to nutrition, hypoglycemia, and CNS symptoms. The acute symptoms can be dealt with by sedation, but to the extent that these symptoms are the result of chronic CNS damage, they may persist.

For those children with severely dysmorphic features, the prognosis for normal CNS development is poor, and they will have special developmental problems and needs. For mildly impaired children--those with attention deficit disorders, learning disabilities, and normal to near-normal intelligence--early identification is important because they, too, will need special education.

Children of Alcoholic Parents

The children of alcoholic parents constitute a special group at risk for a variety of serious problems. Each problem is so grave in itself and so readily compounded by other problems that it is difficult to order these problems in any particular hierarchy of seriousness (Whitfield 1981).

The child born to a mother who drank during pregnancy may suffer from dysmorphic, mental, and behavioral effects of the drug. Superimposed on these handicaps will be those of being reared by an impaired parent. The alternative to such rearing is foster care, which itself has a high potential for misadventure.

The risk of child neglect or abuse by an alcoholic parent is very great, often being compounded by underlying personality traits in addition to the effects of alcohol itself (Black 1979; Hindman 1979). Among these personality traits of the adult alcoholic are some that, even in the absence of alcoholism, would make parenting difficult: immaturity, impulsivity, poor self-control, and depression (Schuckit and Morrissey 1979). Of these traits, impulsivity and poor self-control are particularly exacerbated during drinking. Depression also can be intensified by drinking and, in the depression-prone individual, this feeling is increased during the postdrinking, sober phase by remorse and guilt.

These emotional problems place parents under great stress, which often may push parents beyond endurance when they are challenged by the relentless, unending physical and emotional demands of child care. Moreover, even the elementary details of daily life essential to adequate child care (e.g., management of money, buying and preparing food, cleaning house and laundering, and perhaps holding a job) may exceed the resources of the alcoholic parent (Helfer and Kempe 1976).

Neglect at its most benign--if that word can apply at all--takes the form of emotional unavailability, with variable consequences for the child, depending on his or her individual need for attention. The next level of neglect is manifest in the physical care of the child and can involve any or all dimensions of living, including elemental cleanliness, diet, daily routines, school attendance, and health and medical care. The precise relationship between alcoholism and child abuse and neglect is unknown (NIAAA 1981). Statistics (American Humane Association 1978) indicate that alcoholism was present in 17 percent of the families experiencing child abuse and neglect.

Qualitatively different from neglect is physical abuse, when a child is subjected to actual physical injury by a parent whose behavior is out of control from the disinhibitory effects of intoxication. This is not to say that only a drinking parent is capable of perpetrating physical abuse but rather that drinking is one of the predisposing and precipitating factors in physical abuse. Indeed, drunkenness may be the critical factor and the precipitating event in child abuse, according to a survey of protective agency statistics that indicates that nearly 13 percent of the parents were intoxicated at the time of the child abuse incident (Gil 1970).

Particularly susceptible to becoming physically abusive are those people who were themselves victims of abuse in childhood (Behling 1979) or for whom physical punishment is a cultural norm. Under the disinhibiting effects of alcohol, they may be unaware of the degree of trauma they are inflicting. Sometimes the child is not the intended victim but a surrogate for the spouse, whom the angry parent fears to assault directly. Needless to say, when both parents are alcoholic--a not unusual circumstance--the child's physical jeopardy is greatly increased.

Sexual molestation or abuse, a special case of physical abuse, is another consequence of excessive drinking that usually involves father-daughter incest with or without the mother's knowledge (Browning and Boatman 1977). In less structured families, this type of abuse also may be perpetrated by the mothers' paramour. The mother is sometimes a knowing collaborator, seeking to avoid sexual relations with a drinking partner; sometimes she is an unwitting collaborator because she, too, is intoxicated. The problems that are implicated in parental discord and drinking also play a role in predisposing to incest (Herman and Hirschman 1981).

Another problem for children is the strain of living in a setting of marital discord or spouse abuse that is a consequence either of the drinking or of underlying personality problems and incompatibilities. The children not only are deprived of emotional support and guidance but also may be called on to become surrogate parents and spouses, thus increasing the level of tension in the family and adding to their own role confusion (Hindman 1979). Besides the psychological pain these events cause, the children also experience anxiety and damage to their self-esteem as they try to cope with disturbed parental behavior and to present a conventional image to the world of school and peers. As they grow older, they may come to hate the impaired parent or parents. When only one spouse is a drinker, the children may align themselves with the nondrinker and plead for a separation or divorce.

All of these indicators of stress and disruption call for a family solution as well as for a solution addressed primarily to the drinking member. For abused children, there are family treatment programs in most urban areas under public or private sponsorship, as well as individual therapy for children who have been severely traumatized. For the drinking adult, there are numerous therapeutic approaches: individual psychotherapy, counseling, and group therapy, including Alcoholics Anonymous. It is beyond the scope of this guide to deal with these programs in detail. For spouses, the specifically alcohol-oriented program Al-Anon has been found to be effective, both to provide support for the partner and to offer insight into avoiding relapses.

For children, group treatment can help reduce feelings of isolation and can help to restore good peer relationships among these youngsters who have experienced social withdrawal and poor self-esteem as a result of parental alcoholism (Hawley and Brown 1981). Art therapy in groups has been used as a productive way to encourage children to express their feelings and to cope with the stigma of parental alcoholism (Black 1979). Alateen, a self-help group for the children of alcoholics, is also a valuable resource, providing children with the reassurance of knowing that their problem is not unique, as well as an opportunity to learn from others some strategies for coping (Hughes 1977).

Services for the children of alcoholics can sometimes be found in schools, in specialized alcoholism outpatient centers, in community mental health centers, in specialized multiservice centers for adolescents and youth, and in emergency "crash pads." Virtually all of these programs offer group intervention, primary prevention, alcohol education, and counseling. In many instances, individual counseling and medical services also are available. Referral and participation in Alateen appears integral to most programs. Family counseling is offered in some programs; physical protection of the children is offered in others (Whitfield 1981).

When all else fails, as the last and least desirable choice, the solution for the best interests of the children may lie in foster care. Unfortunately, even with the best placement, the resulting feelings of abandonment, betrayal, and defeat may be lifelong (Kashani et al. 1981).

As mentioned in the discussion of risk factors, a major untoward consequence for the children of alcoholic parents is that they, too, may develop drinking problems, either on a genetic basis or because of the emotional damage from having been reared in chaotic circumstances.

Chapter 5
The Problem of the Student Drinker

Alcohol abuse and drug abuse are well-documented afflictions of physicians. Current data give the prevalence of use among students during medical school as 95 percent for alcohol and 53 percent for other drugs (Thomas et al. 1977). Ten percent of these students drink excessively. This points to a potential, if not an actual problem. Among the suggested reasons for this high incidence are the stresses of dealing with pain and death, the difficulty of acknowledging anxiety, the need to suppress feelings to maintain control, and the need to present an image of competence (McCue 1982). The proportion of medical students requiring, although not necessarily receiving, psychiatric help is estimated to be close to 50 percent (Duffy 1970). Depression and suicidal ideation, estimated at 25 to 30 percent among interns (Ford 1981; Valko and Clayton 1975) also suggest that stress is a serious problem.

It is not merely appropriate but mandatory, therefore, to include the subject of alcoholism in the medical school curriculum. In the course on alcohol and drug abuse, the problem of the affected student or physician can be introduced as a discussion topic. Such issues as how regular use affects learning, memory, decisions regarding patients' use of alcohol, and questions of public health policy can be dealt with. The intention would be to stimulate open discussion aimed at a critical assessment of how personal choices might affect professional judgment. Results of the student attitude questionnaire (Appendix A) could be reviewed for further exploration of specific issues.

A disadvantage of confronting the issue of student abuse in the seminar or classroom format is that, in such a setting, discussion can be impersonal, generalized, or intellectualized. Students with a drinking problem can distance themselves by rationalization or denial in the classroom as well as outside.

Two practical strategies for overcoming this problem are possible. One is to invite interested students to come individually and continue the discussion with the faculty member. Another is to identify students who appear to have academic or personal adjustment problems and offer to listen. As in dealing with an apparently troubled adolescent, the first step in helping is to consider the possibility of an alcohol problem. Thereafter, one can choose, depending on the student's accessibility, to encourage voluntary treatment for the student or to refer the student to the health service.

It would be misleading to give the impression that dealing with student problems of alcohol or drug abuse or other forms of maladaptive behavior is simple. If, in teaching the subject, empathy and humane attitudes prevail, the students may be able to perceive and acknowledge their own needs.

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APPENDIX A

____ ____ ____ 1 (1-4)

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ATTITUDES AND OPINIONS QUESTIONNAIRE

This questionnaire was developed by the author (Doris H. Milman) and colleagues for study in New York City secondary schools, involving 10,000 students. It is being offered here for discussion purposes only.

Please respond to the following by placing a check ([) on the appropriate line, or by writing in a number where required. Ignore the numbers in parentheses in the column to the left; these are for computer coding only.

1. Enter your present year of graduate study (e.g., write in "2" if second year, etc.).

(5) ______

---

2. Enter your age in years (e.g., 21, if 21 years old).

(6,7) ______ ______

---

3. Sex

______ (1) Male
(8) ______ (2) Female

---

4. Marital status

(9) ______ (1) Single
______ (2) Married
______ (3) Separated
______ (4) Divorced

---

5. How many children do you have?

(10) ______

---

6. What is your parents' religion?

(11) ______ (1) Catholic
______ (2) Protestant
______ (3) Jewish
______ (4) Mixed
______ (5) Other; specify here ______________________________
______ (6) Don't know

(12) 7. Have you ever used any of the substances listed in question 8, nos. 13-25? (*self-prescribed, not prescribed by a physician)

______ (1) Yes
______ (2) No (go to question #10)

8. If you answered "yes" to question 7, please indicate which of the following you tried first; which you tried second; which you tried third; which you tried fourth or thereafter. Please circle one alternative for each item.

	Substance	First	Second	Third	Fourth	Have not tried
(13)	alcohol	1	2	3	4	5
(14)	amphetamines*	1	2	3	4	5
(15)	barbiturates*	1	2	3	4	5
(16)	cocaine	1	2	3	4	5
(17)	diazepam* (Valium)	1	2	3	4	5
(18)	hashish	1	2	3	4	5
(19)	heroin	1	2	3	4	5
(20)	inhalants (glue, carbona)	1	2	3	4	5
(21)	LSD	1	2	3	4	5
(22)	marijuana	1	2	3	4	5
(23)	methaqualone* (Quaalude)	1	2	3	4	5
(24)	phencyclidine (PCP)	1	2	3	4	5
(25)	tobacco	1	2	3	4	5

9. How often do you currently use each of the following? (*self-prescribed, not prescribed by physician). Please circle one alternative for each item.

				Currently using			
	Substance	Never	Tried once	1x a month or less	2x a month to 2x a week	More than 2x a week	Usually all the time
(26)	alcohol	1	2	3	4	5	6
(27)	amphetamines*	1	2	3	4	5	6
(28)	barbiturates*	1	2	3	4	5	6
(29)	cocaine	1	2	3	4	5	6
(30)	diazepam* (Valium)	1	2	3	4	5	6
(31)	hashish	1	2	3	4	5	6
(32)	heroin	1	2	3	4	5	6
(33)	inhalants (glue, carbona)	1	2	3	4	5	6
(34)	LSD	1	2	3	4	5	6
(35)	marijuana	1	2	3	4	5	6
(36)	methaqualone* (Quaalude)	1	2	3	4	5	6
(37)	phencyclidine (PCP)	1	2	3	4	5	6
(38)	tobacco	1	2	3	4	5	6

(39) 10. Do you have any younger brothers and sisters under the age of 18 years?

______ (1) Yes

______ (2) No (go to question 12)

11. If you answered "yes" to question 10, please answer the following question.

Would you want your brothers and sisters younger than age 18 to try any of the following? Please circle one alternative for each item listed. (*self-prescribed)

	Substance	No	Yes, any age	Yes, legal age (e.g., 18 years)	Yes, only with doctor's prescription	Not sure, no opinion
(40)	alcohol	1	2	3	4	5
(41)	amphetamines*	1	2	3	4	5
(42)	barbiturates*	1	2	3	4	5
(43)	cocaine	1	2	3	4	5
(44)	diazepam* (Valium)	1	2	3	4	5
(45)	hashish	1	2	3	4	5
(46)	heroin	1	2	3	4	5
(47)	inhalants (glue, carbona)	1	2	3	4	5
(48)	LSD	1	2	3	4	5
(49)	marijuana	1	2	3	4	5
(50)	methaqualone* (Quaalude)	1	2	3	4	5
(51)	phencyclidine (PCP)	1	2	3	4	5
(52)	tobacco	1	2	3	4	5

12. Please indicate if you would introduce your own children to the use of the following? Please circle one alternative for each item. (*self-prescribed, not prescribed by physician).

	Substance	Never	Any age (if I thought they were mature)	Over 18 or legal age	Not sure, no opinion
(53)	alcohol	1	2	3	4
(54)	amphetamines*	1	2	3	4
(55)	barbiturates*	1	2	3	4
(56)	cocaine	1	2	3	4
(57)	diazepam* (Valium)	1	2	3	4
(58)	hashish	1	2	3	4
(59)	heroin	1	2	3	4
(60)	inhalants (glue, carbona)	1	2	3	4
(61)	LSD	1	2	3	4
(62)	marijuana	1	2	3	4
(63)	methaqualone* (Quaalude)	1	2	3	4
(64)	phencyclidine (PCP)	1	2	3	4
(65)	tobacco	1	2	3	4

13. In the following columns please indicate for each item whether you think it has the potential of being harmful to a user, either physically or psychologically. Please circle one alternative for each item. (*self-prescribed, not prescribed by physician).

	Substance	Physical	Psychological	Both	Neither
(66)	alcohol	1	2	3	4
(67)	amphetamines*	1	2	3	4
(68)	barbiturates*	1	2	3	4
(69)	cocaine	1	2	3	4
(70)	diazepam* (Valium)	1	2	3	4
(71)	hashish	1	2	3	4
(72)	heroin	1	2	3	4
(73)	inhalants (glue, carbona)	1	2	3	4
(74)	LSD	1	2	3	4
(75)	marijuana	1	2	3	4
(76)	methaqualone* (Quaalude)	1	2	3	4
(77)	phencyclidine (PCP)	1	2	3	4
(78)	tobacco	1	2	3	4

____ ____ ____ ____2 (1-4)

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14. As a practicing physician, what do you anticipate your attitude will be toward use of each of the following by patients under age 18? Please circle one alternative for each item. (*self-prescribed, not prescribed by physician).

	Substance	Neutral	Actively discourage	Condone	Not sure, or no opinion
(5)	alcohol	1	2	3	4
(6)	amphetamines*	1	2	3	4
(7)	barbiturates*	1	2	3	4
(8)	cocaine	1	2	3	4
(9)	diazepam* (Valium)	1	2	3	4
(10)	hashish	1	2	3	4
(11)	heroin	1	2	3	4
(12)	inhalants (glue, carbona)	1	2	3	4
(13)	LSD	1	2	3	4
(14)	marijuana	1	2	3	4
(15)	methaqualone* (Quaalude)	1	2	3	4
(16)	phencyclidine (PCP)	1	2	3	4
(17)	tobacco	1	2	3	4

15. As a practicing physician, what do you anticipate your attitude will be toward use of each of the following by patients over age 18? Please circle one alternative for each item. (*self-prescribed, not prescribed by physician).

	Substance	Neutral	Actively discourage	Condone	Not sure, or no opinion
(18)	alcohol	1	2	3	4
(19)	amphetamines*	1	2	3	4
(20)	barbiturates*	1	2	3	4
(21)	cocaine	1	2	3	4
(22)	diazepam* (Valium)	1	2	3	4
(23)	hashish	1	2	3	4
(24)	heroin	1	2	3	4
(25)	inhalants (glue, carbona)	1	2	3	4
(26)	LSD	1	2	3	4
(27)	marijuana	1	2	3	4
(28)	methaqualone* (Quaalude)	1	2	3	4
(29)	phencyclidine (PCP)	1	2	3	4
(30)	tobacco	1	2	3	4

16. As a practicing physician, what do you anticipate your attitude will be toward the following?

Parents should be informed when contraceptives are prescribed for their children. Please circle one alternative for each item.

		Yes	No	Individualize according to circumstances	Not sure, or no opinion
(31)	under 15 yrs.	1	2	3	4
(32)	15-18 yrs.	1	2	3	4
(33)	over 18 yrs.	1	2	3	4

17. As a practicing physician, what do you anticipate your attitude will be toward the following?

Parents should be informed when a pregnancy has been diagnosed in their daughter. Please circle one alternative for each item.

		Yes	No	Individualize according to circumstances	Not sure, or no opinion
(34)	under 14 yrs.	1	2	3	4
(35)	14-16 yrs.	1	2	3	4
(36)	16-18 yrs.	1	2	3	4
(37)	over 18 yrs.	1	2	3	4

18. As a practicing physician, what do you think your attitude will be toward the following sexual practices by patients? Please circle one alternative for each item.

		Neutral	Actively discourage	Condone	Not sure, or no opinion
(38)	heterosexual activity under 16 yrs.	1	2	3	4
(39)	16-18 yrs.	1	2	3	4
(40)	over 18 yrs.	1	2	3	4
(41)	homosexual activity	1	2	3	4
(42)	promiscuity	1	2	3	4

19. As a practicing physician, what do you think your attitude will be toward legalization of the following for recreational use? Please circle one alternative for each item.

		No	Yes, any age	Yes, legal age	Yes with only doctor's prescription	Not sure, or no opinion
(43)	cocaine	1	2	3	4	5
(44)	hashish	1	2	3	4	5
(45)	heroin	1	2	3	4	5
(46)	marijuana	1	2	3	4	5

APPENDIX B

ANNOTATED LIST OF CURRICULUM MATERIAL

Books and Monographs

Blane, H.T., and Chafetz, M.E., eds. Youth, Alcohol, and Social Policy. New York: Plenum Press, 1979.

> A collection of articles edited by recognized experts in the field of alcoholism, this publication provides an up-to-date review of information on youthful alcohol use and abuse and implications for treatment. Particularly valuable is Zucker's chapter on the developmental aspects of drinking.

Bourne, P.G., ed. Acute Drug Abuse Emergencies. A Treatment Manual. New York: Academic Press, 1976. 362 pp.

> An approach to the recognition and treatment of drug abuse emergencies is presented in this manual.

Erickson, E.H. Childhood and Society. 2nd ed. New York: Norton, 1963, 445 pp.

> This classic formulation of developmental stages in the context of Western society illustrates the child and adolescent condition in a manner particularly germane to clinical teaching in pediatrics.

Estes, N.J., and Heinemann, M.E., eds. Alcoholism Development, Consequences, and Interventions. St. Louis: C.V. Mosby Co., 1977.

> The contributors to this volume address a broad range of topics related to alcoholism, including theories of alcoholism, diagnostic criteria, alcoholic families, pathophysiological aspects of alcoholism, teenage drinking, children of alcoholics, and various intervention approaches. A basic book, it is written for "all persons concerned with the care of" alcoholics and their families.

Gilman, A.G.; Goodman, L.S.; and Gilman, A., eds. The Pharmacological Basis of Therapeutics. 6th ed. New York: Macmillan, 1980. 1,843 pp.

> This authoritative, classic textbook presents the basic and applied aspects of pharmacokinetics as they relate to all drugs.

Ginsburg, H., and Opper, S. Piaget's Theory of Intellectual Development: An Introduction. Englewood Cliffs, N.J.: Prentice-Hall, 1969. 237 pp.

> This summary of Piaget's conceptualization of cognitive development is a well-written, easily understood summary of Piaget's method and conclusions. A knowledge of Piaget's formulation is essential to an understanding of child development and the impact of cannabis on cognition.

Greenblatt, M., and Schuckit, M.A., eds. Alcoholism Problems in Women and Children. New York: Grune and Stratton, 1976.

> This excellent book summarizes the available research in the area. The chapters address the unique experiences of women and children, the paucity of research in this area, and the implications for intervention. Topics covered include social, psychological, and physiological factors related to alcohol use, the fetal alcohol syndrome, changing trends in alcohol consumption, hereditary transmission of alcoholism, and parental influences on children's drinking.

Group for the Advancement of Psychiatry, Committee on Adolescence. Normal Adolescence: Its Dynamics and Impact. Vol. 6. Report No. 68, February 1968. New York: Group for the Advancement of Psychiatry, 1968, 107 pp.

> This straightforward, comprehensive description of the psychology of adolescence incorporates the essentials of current thinking. It is available through the Publications Office, Group for the Advancement of Psychiatry, 419 Park Avenue South, New York, NY 10016.

Group for the Advancement of Psychiatry, Committee on Public Education. The Joys and Sorrows of Parenthood. New York: Charles Scribner's Sons, 1973. 159 pp.

> The chapters devoted to transmission of values and handling of discipline are important to an understanding of parental concerns in childrearing.

Kissin, B., and Begleiter, H., eds. The Biology of Alcoholism, Vols. 1-6. New York: Plenum Press, 1971-1976.

> This multivolume treatise provides one of the most comprehensive and up-to-date discussions of alcoholism that are available. Volumes in the series are titled Biochemistry, Physiology and Behavior, Clinical Pathology, Social Aspects of Alcoholism, Treatment and Rehabilitation of the Chronic Alcoholism, and Biological Pathogenesis of Alcoholism. The volumes are valuable references.

Maddox, G.L., and McCall, B.C. Drinking Among Teen-Agers. New Brunswick, N.J.: Rutgers Center of Alcohol Studies, 1964.

> Although the findings of this study are somewhat dated, it remains a useful empirical work that highlights some of the social factors that influence a teenager's drinking practices.

Mayer, J.E., and Filstead, W.J., eds. Adolescence and Alcohol. Cambridge, Mass.: Ballinger Publishing, 1980.

> This volume consists mainly of a collection of reprinted articles. These cover topics such as definitions of alcohol abuse, implications for treatment, and conceptual frameworks.

Nahas, G.G., and Frick, H.C., III, eds. Drug Abuse in the Modern World. New York: Pergamon Press, 1981. 381 pp.

> The collected papers of this symposium reflect current research as well as political and social issues. The scope is broader than that of the usual medical publications on drug abuse.

National Institute on Alcohol Abuse and Alcoholism. Services for Children of Alcoholics. Research Monograph No. 4. DHHS Pub. No. (ADM) 81-1007. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1981.

> This monograph presents the recommendations of a symposium sponsored by NIAAA in the fall of 1979. The purpose of the symposium was to draw attention to the needs of children with alcoholic parents and to make recommendations for assisting them. Chapters in the monograph cover topics including identification of children at risk, barriers to treatment, preventive efforts, and other types of intervention. One of the appendices contains useful descriptions of several programs that have been established for these children.

Rementeria, J.L., ed. Drug Abuse in Pregnancy and Neonatal Effects. St. Louis: C.V. Mosby Co., 1977, 229 pp.

> Contributions from more than 30 authors present a multidisciplinary view of the dimensions and consequences of alcohol and drug abuse during pregnancy.

Royce, J.E. Alcohol Problems and Alcoholism: A Comprehensive Survey. New York: Free Press, 1981.

> The author of this volume attempts to provide a comprehensive overview of the phenomenon of alcoholism. It is suitable as a college textbook and would be most useful to provide background information for medical students with little or no knowledge of alcoholism.

Simons, R.C., and Pardes, H., eds. Understanding Human Behavior in Health and Illness. Baltimore: Williams and Wilkins, 1977. 718 pp.

> The chapters on child and adolescent development offer a synthesis of major theoretical formulations regarding development and personality.

Smart, R.G. The New Drinkers: Teenage Use and Abuse of Alcohol. Toronto: Addiction Research Foundation, 1980.

> This book provides a good overview of major research findings on teenage drinking. It also suggests some implications of these findings for treatment and prevention. Most of the statistics used are from Canadian studies.

Zimberg, S.; Wallace J.; and Blume, S.B., eds. Practical Approaches to Alcoholism Psychotherapy. New York: Plenum Press, 1981.

> As the title of this book suggests, its articles contain practical suggestions for alcoholism treatment. Particularly relevant are chapters on treatment of adolescents, family treatment, Alcoholics Anonymous, treatment of the significant others, and office-based practice.

Audiovisual Material

Francesca Baby

16 mm, color, 46 min. Walt Disney Educational Media, 500 South Buena Vista Street, Burbank, CA 91500. Rental or purchase.

> This is a lengthy film, but one that is useful for demonstrating the difficulties of teenage children of alcoholics and the role Alateen can play in helping them resolve their problems.

Identification of the Alcoholic Patient

16 mm color, 22 min. Department of Family Practice, University of Michigan School of Medicine, Ann Arbor, MI 48104. Rental or purchase.

> The student is introduced to the technique of interviewing an alcohol-abusing patient and of obtaining a drug use history.

Soft is the Heart of a Child

16 mm, color, 20 min. Operation Cork, P.O. Box 9550, San Diego, CA. Rental or purchase.

> This film is a depiction of the impact of alcoholism on the family.

The Neonatal Abstinence Syndrome: Diagnosis

3/4" videocassette, color, 10 min. Career Teacher Center, Baylor College of Medicine, 1200 Moursund Avenue, Houston, TX 77030. Purchase.

> This is an excellent teaching film that presents a clinical demonstration of the signs and symptoms of neonatal abstinence syndrome.

The Neonatal Abstinence Syndrome: Management of the Acute Phase of Complications

3/4" videocassette, color, 12 min. Career Teacher Center, Baylor College of Medicine, 1200 Moursund Avenue, Houston, TX 77030. Purchase.

> A followup to the previous videocassette, this film outlines a treatment regimen for neonatal abstinence syndrome and presents an approach to recognition and management of complications.

Resources

The following organizations can be contacted for information about alcoholism among the young and for referral information about alcoholism facilities providing services for children and adolescents.

Al-Anon Family Group Headquarters
P.O. Box 182
Madison Square Garden Station
New York, NY 10010

> A self-help group with chapters located throughout the Nation, Al-Anon is modeled after the principles of Alcoholics Anonymous. Its focus is not on the alcoholic but on the family members, friends, and acquaintances of alcoholics who also suffer from the alcoholic's illness. Local chapters can provide information about available meetings and resources for family members and others.
>
> The national headquarters provides literature for circulation to patients; it also provides information on Alateen, a self-help organization for children of alcoholics.

Alcoholics Anonymous World Services, Inc.
P.O. Box 459
Grand Central Station
New York, NY 10163

> A self-help group founded in 1935 with local chapters in virtually every locality in the Nation, AA is a valuable resource for the pediatrician. Local chapters are listed in the telephone directory. The World Service section provides literature and information for the youthful alcohol abuser.

National Clearinghouse for Alcohol Information
P.O. Box 2345
Rockville, MD 20852

The National Clearinghouse for Alcohol Information has been established as a service of the National Institute on Alcohol Abuse and Alcoholism (NIAAA) to make available current knowledge on alcohol-related subjects. From worldwide sources, the Clearinghouse collects information on studies and programs pertaining to prevention, training, treatment, and research aspects of alcohol abuse and alcoholism, and shares this knowledge with interested professional audiences as well as with the general public. A publications order form for medical educators and additional information on Clearinghouse services and products are available at the above address.

National Clearinghouse on Drug Abuse Information
P.O. Box 416
Kensington, MD 20795

The National Clearinghouse on Drug Abuse Information (NCDAI) has been established as a service of the National Institute on Drug Abuse (NIDA) and is the focal point within the Federal Government for the collection, dissemination, and exchange of drug abuse information. Publications useful to health professions educators and practitioners may be obtained from NCDAI, free of charge, subject to availability. For additional information, a complete monthly Publication Listing, and order form, write to the above address.

National Council on Alcoholism
733 Third Avenue
New York, NY 10017

The National Council provides the pediatrician with a national network of resources for the alcoholic and his or her family. In addition to referral services, the council provides consultation and assistance to concerned physicians. Local members may be available for speaking engagements and other educational activities. The council has local affiliates that provide referral, information, and educational services in many major cities.

Rutgers University
Center of Alcohol Studies
P.O. Box 969
Piscataway, NJ 08854

A prime source of scientific and professional information and documentation on human use of beverage alcohol and its effects. The Classified Abstract Archive of the Alcohol Literature (CAAAL) is based here, and the Center publishes the Journal Studies on Alcohol.

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

Catalogs and publication lists can be obtained by contacting these organizations directly.

DRUG ABUSE CURRICULUM GUIDE

Introduction

Systematically teaching medical students about drug abuse disorders is a relatively recent undertaking. Consequently, there is a lack of cumulative experience in this area, as compared with other clinical subjects for which teaching models have developed over long years of trial and error. In fact, the term "substance use disorder" dates back only to the publication of the recently revised Diagnostic and Statistical Manual (DSM III) (American Psychiatric Association 1980). Moreover, the criteria for diagnosing substance use disorders are based on the alcohol model, which is neither necessarily nor wholly applicable to other drugs. Moreover, in DMS III no differentiation is made between children and adolescents on the one hand, and adults on the other, concerning physical effects of drug use or its psychological antecedents and consequences.

Abuse of drugs, except for tobacco and alcohol use, is a relatively new phenomenon in the lives of American youth. Hence, we have the complex problem of teaching the subject effectively and of developing the clinical experience from which to provide a reliable knowledge base. The instructor needs current knowledge of frequently changing drug use choices and patterns, of users' epidemiology and demography, and of social-psychological implications. The output of new research reports on cannabis, for example, is so voluminous that a curriculum would have to be revised at yearly intervals merely to keep up with new findings. Added to these realities is the fact that teachers of our generation have had little or no firsthand experience with drug use and are charged with teaching students who are experienced. This is indeed a challenging paradox.

Cannabis use will serve as the paradigm for all nonalcohol drugs of abuse for the following reasons. First, marijuana is the most widely used nonalcoholic drug, 60 percent or more of American youth have had some experience with it prior to graduation from high school (National Institute on Drug Abuse 1979, 1980); second, it is a legally controlled substance restricted to clinical and research uses; third, the general public can obtain it only through illicit channels; and fourth, its undesirable effects are not widely acknowledged and, in most cases, are not a serious deterrent to illicit use.

Other aspects of cannabis use make teaching about it particularly difficult. For example, although it is has been a commonly used drug for centuries in India, Southeast Asia, and the Middle East, scientific knowledge of its effects has been accumulating for only about 20 years. Moreover, systematic investigation of its damaging effects was preceded by widespread popular acceptance of marijuana in this country. This made the audience for such information unreceptive. In addition, association of this drug with entertainment media, together with the message that it is antiestablishment, has created an adversarial climate not conducive to either teaching or learning. In teaching other subjects, the pediatrician faces an audience that is, if not enthusiastic, as least receptive; but in teaching about cannabis as it affects the young, we may encounter resistance based on prior personal and social experience.

For several reasons, then, teaching about cannabis abuse must be approached somewhat differently from teaching about alcohol. To present the subject of cannabis abuse, one must first introduce a large body of new and unfamiliar basic knowledge to lay the groundwork for understanding the related health hazards. Only after this has been accomplished can one proceed to attitudinal issues and clinical, preventive, and public health considerations.

Chapter 1
Goals and Objectives

Goals

Learning about cannabis abuse should enable future practitioners in any of the primary care specialties (pediatrics, medicine, obstetrics, and psychiatry) to be well informed factually. All practitioners need an adequate scientific knowledge base for making their clinical decisions. They should be able to recognize a user as well as a person who is at risk. They should feel comfortable with diagnosing the disorder, talking with patient and parents, dealing with patients whom they feel competent to handle, and making appropriate referrals where indicated.

Objectives

To achieve these goals, the student should achieve the following objectives:

- Define the basic biochemical and pharmacological properties and physiological actions of cannabis; explain the clinical implications and significance of these properties and actions
- Describe the cognitive and emotional changes associated with cannabis abuse, particularly as they apply to the developing personality; interpret these within the framework of normal child and adolescent development
- Identify the individual personality factors, age-related developmental characteristics, family dynamics, and cultural and social issues that predispose a person to or promote continuation of cannabis use
- Conduct interviews with a child or an adolescent; elicit a reliable drug history; perform a competent clinical assessment of the adolescent cannabis abuser
- Describe the essential goals of treatment for a child or an adolescent cannabis abuser, the different modalities of treatment available, and the indications for each approach; define the role of the family in the therapeutic process
- Present information about cannabis and its use to patients and to family, school, and community groups for the purpose of education and prevention
- Confront the attitudinal issues that complicate an objective evaluation of the cannabis abuse problem, including those based on personal use
- Identify the classes of drugs and the specific drugs commonly used by polydrug users, and understand the specific adverse effects of each, as well as known interactions

- Recognize the clinical presentation of drug overdosage and know the principles of management
- Recognize the clinical presentation of a drug withdrawal syndrome in a neonate; recognize the typical features of the fetal alcohol syndrome; be conversant with the health hazards to mother and fetus associated with drug abuse during pregnancy

Chapter 2
The Pediatrician's Role in the Curriculum

Systematically teaching medical students about cannabis abuse in children and adolescents is most effective when an interdisciplinary approach is used, combining efforts of faculty from the basic sciences, pediatrics, adolescent medicine, and psychiatry. The general plan of such an integrated program is to present the core subject matter during the first 2 years, in preparation for studying clinical effects in the third and fourth years. Attitudinal issues are critically examined throughout the entire process.

Subject Matter

Subject matter for this curriculum is presented in chapters 3 and 4 of this guide. The most important aspects are neuroendocrine, neuropsychological, cognitive, and emotional efforts and their clinical manifestations. This knowledge is a prerequisite to functioning as a pediatrician being called on to practice prevention, identification of children at risk, early intervention, diagnosis, and family and community education. The greater the depth of knowledge, the better equipped the pediatrician will be to meet clinical functions and to inform parents and the public. Since 1971, the Academy of Pediatrics has acknowledged the importance of a base of up-to-date factual knowledge in its periodic statements on marijuana and other drugs of abuse (American Academy of Pediatrics 1980, 1983).

The context used in presenting this curriculum material will depend on which topic is being taught. For example, the core material on physiology pharmacokinetics is probably best presented in the pharmacology context, much the way alcohol and opiates are dealt with. Neuroendocrine and neuropsychological effects can be incorporated either into pharmacology or neurophysiology, depending on when and how related topics occur in the medical school curriculum during the second year. A course in human behavior or medical psychology, usually part of the second-year curriculum, can include behavioral effects of cannabis, the impact of cannabis effects on the developmental process, motivation for starting and continuing to use the drug, predisposing factors, and psychodynamic issues. An alternate plan for the core curriculum is to present all aspects of drug abuse in a single, interdisciplinary lecture series, coordinated with small group seminars.

Clinical Skills

The foregoing introduction prepares the student to develop the clinical skills required for interviewing adolescents, discussing drug use with them, presenting information to parents, evaluating the adolescent's receptivity to intervention, and preparing the adolescent patient to accept referral. Training in skills can begin with using the models developed in medical and psychiatric interviewing, by means of live or taped demonstration (mock) interviews. (Patients' taped interviews may be used if and only if the standard consent procedures of the institution are followed.) These presentations would be followed by student interviews of patient surrogates. Finally, the student would interview real patients. If the patient gives informed, written consent (as specified by the medical school), tape recordings of these sessions will be useful for subsequent group discussion and analysis. Such techniques have the added value of extending training opportunities in centers having relatively little access to adolescent drug users.

The third-year clinical clerkships provide many opportunities for the student to gain experience in dealing with individual patients. Furthermore, by observing preceptor models in a variety of adolescent clinical settings and then incorporating preceptor behavior, the student learns how to be reassuring without being condescending and how to foster receptivity on the part of the patient. The student learns to employ adolescents' colloquialisms appropriately thus enhancing communication.

The fourth year, which in most medical schools offers an elective curriculum, provides students interested in pediatrics an opportunity to apply their skills and knowledge to a most critical aspect of drug abuse, namely, prevention. This can be done in pediatric continuity care clinics or in preceptorships with private practitioners. In these two very different contexts, the student can learn that primary prevention heavily depends on education, which starts with the individual child but also includes family, school, and community.

Education of the individual about drugs, as in the case of alcohol and tobacco use and sexuality, begins in childhood, at a time when family standards and adult values in general are being assimilated by the child. Well-child visits during prepubertal years offer opportunities to discuss these issues, probably in combination rather than separately. A useful approach is to ask whether these topics are being talked about in school or among friends. Communication can be encouraged by suggesting that the child may have wondered why some people use drugs, why grownups think drugs are harmful, or whether there is any harm in trying marijuana.

The student physician will discover that the patient's education, like the student's own, will not be accomplished in one visit; that a positive attitude toward oneself and one's well-being must evolve; and that this process requires months and years of emotional as well as intellectual investment.

Primary prevention at the family level will involve a discussion with the family as a group, encouraging parents to examine their own beliefs and drug practices, the ways in which these affect their offspring, and the ways in which children perceive the consistencies or inconsistencies in parents' practice and preaching. Again, these are not one-time efforts; they require continuity and change of emphasis as the child moves into and through adolescence.

School and community education are extensions of the pediatrician's prevention practice. Most pediatricians generously donate time to this effort, and many medical centers maintain liaison with local school or community groups. Student participation in such educational activities provides awareness of the level of concern and sophistication that exists among parents and teachers, as well as some of the public confusion about marijuana that results from the mixed messages coming from the medical community (Gleaton 1981; Schuchard 1981). The clearest message the pediatrician can convey is also the simplest: marijuana is not a drug without hazards, especially for the young, taking into account its known harmful effects and allowing for the possibility of as yet unidentified effects of prolonged use (American Academy of Pediatrics 1983; American Medical Association 1980).

Secondary prevention involves identification of those at risk and early intervention for those who may be in the first stages of experimentation. Because it is not always possible to differentiate the at-risk person from the beginning user, these two categories can be dealt with in the same way. Psychological factors (low self-esteem, poor social skills, school problems, depression) and family stresses (parental discord, divorce, economic problems, lack of supervision, excessive parental expectations, parental drinking or drug abuse, parental emotional instability) should be recognized as risk factors. Other factors that identify the at-risk child or adolescent are drug-associated activities, namely tobacco or alcohol use, friends who use drugs, attendance at a school or social group where drug use is common, and precocious sexual activity (Milman and Su 1973).

Early identification having been made, the next step is to discuss with the child, in specific rather than general terms, any particular psychological or family stresses and whatever social pressures the child may be experiencing. This is the time when marijuana and other drug issues can also be addressed individually rather than generally. After separate discussions with the child and parents, a family discussion would be in order, followed by a joint decision about appropriate intervention measures. (See the section on treatment.)

The most difficult problem for the student pediatrician, as well as for the parents, is to know when to believe a child's denial of drug use. Children are rarely frank with parents and, fearing a betrayal of trust, often are hesitant to confide in the pediatrician. One must tread a fine line to assure confidentiality, lest the relationship be jeopardized and effectiveness lost. On the other hand, parents cannot be excluded from knowledge of potential danger. It is best to inform the child that any confidence will be respected if the child's health or life is not in danger. The child also is asked to consider whether his or her parents have not, on balance, usually reacted supportively when needed, and what would happen in the event they learned later, rather than sooner, the true state of affairs. The child should be encouraged to share, voluntarily, any problem with his or her parents so that all can participate in a constructive resolution. Once the child has discovered that confiding in an understanding adult is possible, fears and guilt become partially neutralized, making it easier for the child to talk with his or her parents.

The ultimate way to determine whether a child is using marijuana is a urine test for the presence of cannabinoids (Rodgers et al. 1978; Rubinstein 1979). This test can be included in all well-child examinations after the age of 10 or 11 years. It is simple, available, and inexpensive. When positive, it sets the stage for getting directly to the problem.

Attitude

The pediatrician, in interaction with the patient and the family, finds them predisposed to regard the doctor as benign and helpful. Thus, rapport is easily established. The problem for the student physician is to maintain that rapport by avoiding a judgmental stand that could alienate the patient or activate the parents' defenses. On the other hand, a neutral or permissive physician may be doing the child an injustice in the long run, and may subsequently experience recrimination from parents who will ultimately have to cope with the deleterious effects of drug use.

Thus, a fine line must be drawn between condemning and condoning. Somewhere between these extremes lies a position that is determined by concern for the child's present and future welfare, while conveying knowledge of and experience with the effects of cannabis. Because the pediatrician's relationship with the patient and family has always emphasized well-being, health, and prevention, the cannabis issue can be placed in that same context. The pediatrician can then be comfortable with the preventive, helping role, and thereby can communicate a sense of ease and helpfulness.

Enabling the student to develop appropriate professional attitudes is a challenging task for faculty because of the subject matter--drugs--and because of the patient group--adolescents. Some students will approach the subject matter with previously acquired and firmly held opinions and attitudes that interfere with their ability to accept new material and that complicate the learning process for themselves and their colleagues. The basis for some of these opinions and attitudes and the role these play in developing resistances to teaching are referred to elsewhere in this guide.

The age of the medical students is another barrier to developing an appropriate attitude. Because most students are chronologically young and not very far advanced beyond the adolescent stage of development, they tend to overidentify with this age group of patients, can be highly defensive on the patient's behalf, and often are unable to achieve distance and objectivity. This is not helpful to either student or patient.

Exploration of student attitudes and opinions early in the program is helpful as an orienting exercise. Self-administered questionnaires have been used effectively in other contexts to facilitate discussion of student attitudes related to drug use (Anker and Milman 1972). This method can be used early in this curriculum as well (see Appendix A). The results can help to sensitize the faculty and also can help the students develop perspective regarding their own beliefs, while encouraging them to speculate on how opinions are formed and maintained.

Clarifying ideas, discriminating between opinion and fact, and enabling students to develop an appropriately mature, professional attitude are time-related and time-consuming processes. They begin with the first student-patient encounter. Depending on the educational philosophy of the medical school, this may occur as early as the first year in a family practice clinic. In the earliest and subsequent situations, the clinical teacher has the advantage of participating in the process and becoming, in transactions with patients, an example of how to be both empathic and detached. The tone is set by the teacher's compassion and concern. As the students assimilate the appropriate demeanor, its elements can be analyzed in small preceptor-student conferences in which the teacher encourages the students to speculate on the qualities of mind that are necessary for this type of professionalism and duality. Such discussion can be enlarged on in the third year and become more analytical in developmental pediatric seminars and in child guidance and well-child continuity clinics. In a climate of continuous monitoring, analyzing, and reflecting on the successes and failures of each interaction with a patient, sensitivities and attitudes can be shaped that will prove effective not only in the treatment of drug abuse but also in dealing with other sensitive issues of adolescence.

Chapter 3
Core Subject Matter

History

Man has experimented since prehistoric times with every manner of fruit, grain, root, bark, and resin to satisfy the need for food, drink, and medicines. Included in this experimentation have been substances that alter mood or state of awareness. Grain and grape, coca leaf, mushroom, poppy, and cannabis have served these mood- and mind-altering desires in different parts of the world and in different cultures.

Cannabis sativa, the hemp plant, known to the Chinese as an intoxicant as early as 1200 B.C., has been widely used throughout Southeast Asia, Africa, the Middle East, and the Americas for centuries. Use of cannabis has been particularly widespread in India since 1000 B.C., where it has served in religious contexts. It has been eaten, drunk, or smoked and has been prepared variously as marijuana, hashish, bhang, ganga, or dagga. In the United States it is usually smoked as marijuana (the dried leaves and flowers) or as hashish (the more concentrated resin).

The early medical publications, issuing from India in the 19th century (Indian Hemp Drug Commission 1893-1894/1969) and from the United States in the first half of this century, were largely descriptive and emphasized deleterious mental and behavioral effects (Allentuck and Bowman 1942; Bromberg 1934). Medical interest in the subject declined for a while, then it revived again in the 1960s in response to rapidly expanding use of the drug. There was a new emphasis on objective evaluation of its psychological effects. From these investigations emerged an awareness of the paucity of knowledge about the physiology and pharmacology of cannabis, which in turn led to serious and sophisticated research efforts that continue.

As with all mind-altering drugs, the unrestricted use of cannabis has long been known to disrupt individual and social functioning. Hence, in all cultures and at all times, various ways to restrict its use have been tried. In simpler societies, use was controlled by religious, ceremonial observance; in modern times, by social constraints and legal means. Most recent attempts at control have involved international efforts by the United National Commission on Narcotics and the World Health Organization. The latter agency advises on which drugs require restriction "in the interest of public health and for the prevention of drug abuse" (United Nations Commission on Narcotics 1963; World Health Organization 1969). The United Nations has taken the position that the use of cannabis should be controlled, should not be legalized in countries where it is illegal, and should be progressively restricted where use is a commonly accepted custom.

Definitions

There are two basic systems of nomenclature: (1) that employed by the World Health Organization (WHO) in A Manual on Drug Dependence (1975), and (2) that developed by the American Psychiatric Association (APA) (1980). The WHO formulation is that drug dependence is characterized by behavioral and other responses, including a compulsion to take the drug on a continuous or periodic basis to experience its psychic effects or to avoid the discomfort of its absence (World Health Organization 1975). Tolerance (a need or desire for increasing dosage to obtain the same effect) may or may not be present. A person may be dependent on more than one drug. Psychic dependence is a condition in which a drug produces a state of satisfaction and urge that "requires periodic or continuous administration of the drug to produce pleasure or avoid discomfort." Physical dependence is characterized by "intense physical disturbances when the administration of the drug is suspended." Confusion has arisen over the distinction between "psychic" and "physical" dependence in the absence of specific biological, pharmacological, and psychological markers. These distinctions are currently being reconsidered.

APA's Diagnostic and Statistical Manual of Mental Disorders (1980), usually referred to as "DSM III," has attempted to clarify the issue by using the general diagnostic category "substance abuse disorder" and defining it in operational terms for each different drug, in accordance with the specific abuse properties of the particular drug.

In the case of cannabis, abuse is described as (1) a pattern of pathological use characterized by constant intoxication, plus (2) impairment in social and occupational functioning, along with (3) tolerance. The neurophysiological impairment caused by cannabis is termed "cannabis organic mental disorder." Two forms of cannabis disorder are recognized: (1) cannabis intoxication characterized by euphoria, intensification of perceptions, sensation of slowed time, and apathy; and (2) cannabis delusional disorder.

These definitions have certain limitations. They apply primarily and perhaps exclusively to adult conditions and presuppose a fully evolved adult personality on which are imposed the effects of more or less prolonged exposure to the drug. No consideration is given to the possibility of a different effect on the developing personality. In addition, psychotogenic properties of cannabis, either acute or chronic, are not specified.

Epidemiology

Only in the past 20 years has marijuana use in the United States been widespread enough to capture the attention of the general public and, therefore, of the medical establishment. Much has been written about the incorporation of marijuana into the youth culture of the 1960s. Many factors have been invoked to explain this involvement phenomenon: the antiestablishment spirit of the times; the Vietnam War; the civil rights movement, which for some became a libertarian movement; popularization of drug use by rock musicians; publicizing of drug use by the entertainment and news media; and a general loosening of social and family constraints (Schuchard 1981; Suchman 1968).

All of these forces play a role, particularly as they interact with the individual developmental features and group dynamics of children and adolescents. That the forces are real is attested to by prevalence statistics. Data have been gathered by a variety of self-reporting techniques, beginning in the mid-1960s. While not all the figures are comparable, being based on different target populations and methodologies, certain facts emerge. Use among college students rose from a negligible level (less than 5 percent) in 1960 to levels as high as 39 percent in 1970 (Anker et al. 1971) and 70 percent in 1980 (Pope et al. 1981). Use by high school students followed a similar pattern with a 5-year lag behind college students at the outset, a gap that by now is virtually closed. Prevalence was found to be 12 percent in 1969, according to one study (Milman and Su 1973). By 1976, surveys indicated that 37 percent of high school seniors were current users, and 53 percent had experienced some use (National Institute on Drug Abuse 1980). The data on medical students' use (a lifetime use rate of 68 percent in New York City and 70 percent in San Francisco medical schools) are particularly germane to the task of teaching a group that has preformed opinions based on their own past or present experience (Lipp et al. 1971).

Biochemical, Pharmacological, and Physiological Effects of Cannabis

Marijuana has significant effects on the bronchopulmonary, immune, endocrine, and reproductive systems and on neuropsychological mechanisms (Nahas 1979). The pharmacokinetics of cannabis have been studied particularly in terms of one of its most psychoactive ingredients, Δ-9-tetrahydrocannabinol (THC). This substance is fat soluble and clears rapidly from plasma (Garret 1979). It is distributed to the lung, myocardium, adrenal glands, spleen, adipose tissue, and brain, with varying rates of entry into and return from these sites. Its physiological effects are produced both by its alteration of cell membrane transport activities and by its interference with protein synthesis functions of cell nuclei (Desoize et al. 1979; Stein et al. 1979). Owing to its lipid solubility and its enterohepatic recirculation, it has a half-life of between 5 and 7 days, and a single dose is not fully eliminated for 30 days (Rosenkrantz and Braude 1974). Absorption through the lungs is more rapid and efficient than absorption from the gastrointestinal tract: 20 percent of smoked THC is absorbed into the bloodstream, in contrast with 5 to 10 percent of ingested THC (Agurell et al. 1979). Also, a maximum absorption of smoked THC occurs in 5 minutes, compared with 1 hour for ingested THC. In clinical terms, the prolonged half-life means that a regular user is never free of the drug, even though he may not be continuously intoxicated; in contrast, a single dose of water-soluble alcohol clears from the body in 6 hours.

To consider the first of these systems, one effect of marijuana smoking on the bronchopulmonary tree is similar to that of tobacco in that it leaves a residue of irritant tars with a carcinogenic potential. It can be argued that the tobacco user who smokes 20 or more cigarettes a day is at greater risk than the marijuana smoker whose use, even at high levels, rarely exceeds 4 to 6 "joints" a day. On the other hand, the tobacco smoker does not normally consume the entire cigarette, whereas the marijuana user, smoking down to the last shred, inhales the most concentrated and potentially harmful portion. Also, the mode of smoking maximizes the length of time the smoke is held in the lungs. Moreover, marijuana is less combustible than tobacco, thus leaving a 50-percent greater residue of aromatic hydrocarbons than does tobacco; these hydrocarbons are thought to be associated with bronchogenic carcinoma (Kellerman et al. 1973). The question of the relative carcinogenicity of marijuana versus tobacco may be less important than the combined effect of the two, in that the majority of marijuana users also smoke tobacco (Block and Goodman 1978). In one study of human subjects, bronchial biopsies revealed squamous metaplasia in heavy smokers of hashish after 1 year of use. In contrast, similar lesions, considered to be precancerous, are found in tobacco smokers after 15 to 20 years of smoking (Tennant 1980).

Marijuana smoking affects the lung in other ways as well. It compromises pulmonary function by decreasing airway conductance--an early symptom of pulmonary obstructive disease--to a greater extent than does tobacco smoking (Rosenkrantz and Fleischman 1979; Tashkin et al. 1980); and marijuana smoke impairs the antibacterial defensive system of the lung through its toxic effect on pulmonary macrophages (Huber et al. 1979). Tobacco smoking enhances the potential damage.

Both humoral and cell-mediated immune systems are inhibited by cannabis (Lefkowitz et al. 1978; Munson et al. 1976), lowering host resistance to viral, bacterial, and fungal infection (Morahan et al. 1979). Although depression of immune mechanisms may or may not be of clinical significance in a healthy adolescent, it may be of serious import for those adolescents whose immune mechanisms have been compromised by treatment for such conditions as disseminated lupus, organ transplant, and malignancy. Indeed, THC has been shown to have an enhancing immunosuppresive effect when administered in conjunction with cyclophosphamide (an antimetabolite used in the therapy of lymphomatous diseases and leukemias) (Ader and Grota 1981). Thus, use of cannabis for relief of nausea (Poster et al. 1981) may expose the smoker to additional hazard from infection. A recent report has implicated the fungus aspergillus, a parasite of the marijuana plant, in mycotic lung infection. Although the risk of this infection is greater in the immunologically compromised individual, apparently healthy individuals also can be infected (Kagan et al. 1981).

The effects of cannabis on the endocrine system are under continuing intensive investigation. There are measurable effects on the hypothalamopituitary axis, leading to decreased levels of luteinizing hormone, follicle stimulating hormone, and prolactin. Disruption of ovulatory cycling is implied in these effects (Asch et al. 1979; Smith et al. 1979). In the male, accumulating evidence points to marijuana's inhibition of function by inhibiting luteinizing hormone and thereby depressing testosterone levels (Jacubovic et al. 1979), although its effect on prepubescent and pubescent boys has not been studied. In the clinical experience of the authors (Milman 1981, 1982) and others (Copeland et al. 1980), adolescents who are heavy users of marijuana are noticeably less bearded and more delayed in the acquisition of secondary male sex characteristics than are nonusers of comparable age. Spermatogenesis has been found to be impaired in heavy users, as evidenced by diminished sperm count, diminished sperm motility, and increased numbers of abnormal sperm (Hembree et al. 1979; Zimmerman et al. 1979).

These effects appear to be reversible when the drug is discontinued. Several problems remain, however. First, nothing is known about the endocrine effects on the prepubescent or pubescent child or the young adolescent; second, with slow excretion of the drug and its retention in fat cells, there may be as yet undefined cumulative effects of chronic long-term use; and third, there are clear indications of an embryotoxic effect in experimental animals.

Embryotoxic and fetotoxic effects of maternal cannabis use have been studied in small mammals, yielding evidence of retarded fetal growth, fetal resorption, stillbirths, and neonatal deaths (Rosenkrantz and Fleischman 1979; Sassenrath et al. 1979). Facial dysplasia has been reported in rodents (Harbison et al. 1977; Siegel et al. 1977). Behavioral changes have been noted in rodent offspring, such as hyperactivity, overresponsiveness to environmental stimuli, learning difficulties, and inappropriately cautious or avoidant behaviors (Gianutsos and Abbatiello 1972; Vardaris et al. 1976). These findings take on special significance if extrapolated to humans (Carakushansky et al. 1969). Fetal growth retardation, central nervous system (CNS) hyperexcitability in the newborn, and facial dysplasia in the babies of marijuana-using mothers have been reported (Hingson et al. 1982; Qazi et al. 1985). At another level of function, prenatal exposure of male mice ultimately alters their reproductive function (Dalterio and Bartke 1979).

Of greatest immediate concern in the pediatric age group is the effect of cannabis on the brain. Biochemical and structural cellular changes affect neurochemical transmission in ways that ultimately translate into neurological and behavioral effects (Heath et al. 1980). Such effects would be consistent with a more general principle that drugs that affect CNS function in gestating mothers impair adaptive behavior in their offspring. This class of drugs has been designated as behavioral teratogens (Voorhees et al. 1979).

Emotional, cognitive, and psychomotor effects of cannabis use have been documented. The limbic system, which mediates mood and alertness states, has been specifically implicated in the cannabis effect (Miller 1979). Cognitive effects, including impairment of verbal memory, acquisition, storage, and retrieval, have all been observed in human subjects (Clark et al. 1979; Dornbush and Kokkevi 1976; Klonoff et al. 1973). CNS effects that have been subjected to careful systematic study are psychomotor and visual perception impairments (Braff et al. 1981; Roth et al. 1973; Sharma and Moskowitz 1972). These deficits associated with marijuana imply hazards in automobile driving, especially if alcohol also is used (Belgrave et al. 1979; Klonoff 1974).

The question of cannabis abstinence syndrome in man has been debated, although it apparently occurs in monkeys (Kaymakcalan 1981) and in rats (Chesher et al. 1979). At least some humans experience abstinence in the form of irritability, sleeplessness, decreased appetite, sweating, salivation, and tremors (Jones and Benowitz 1976). As with all psychoactive drugs, tolerance to cannabis develops and is reversible on discontinuance of the drug (Hollister 1979).

Major gaps remain in our present knowledge. Among these are the effect of marijuana used in combination with other drugs and the long-term effects of chronic marijuana use, with particular reference to the outcome for children, adolescents, and those exposed prenatally. All prior and current knowledge of these age groups is based on anecdotal material. Systematic investigation has been performed only on small mammals and primates or on so-called healthy adult male volunteers. Given ethical considerations, it is not possible to perform systematic studies on minors or pregnant women. Outcome studies remain to be done on cohorts of young users, comparing physical and psychological outcome over decades with matched cohorts of nonusers, keeping in mind how many centuries tobacco was smoked before a connection was made between smoking and disease.

Psychological Effects of Cannabis

The most extreme effect of cannabis, known since antiquity, is the cannabis-induced psychotic reaction, with delusional symptoms, disorientation, visual disturbances, hallucinations, paranoia, spontaneous recurrences or flashbacks, and feelings of depersonalization (Keeler 1967, 1968; Keup 1970; Talbott and Teague 1969; Weil 1970). The psychosis may present acutely or insidiously and may be either transient and wholly reversible or prolonged and chronic. When chronic, it is clinically indistinguishable from chronic psychosis of the schizophrenic or paranoid type (Stone 1973).

Less florid and less obviously disabling but--for the child or adolescent--of serious import are a myriad of cognitive and emotional changes caused by marijuana. The most prominent cognitive effects are impaired recent memory and retrieval, attentional deficits, difficulties in central processing, altered time perception, and visual distortions. At another level of cognitive functioning, verbal fluency is impaired, with impoverishment of vocabulary and diminished verbal expressivity.

Among emotional effects are mood fluctuations, including euphoria, dysphoria, listlessness, apathy, and depression. Other emotional responses include drowsiness, indolence, withdrawal, anxiety, and apprehension. Hallucinations, paranoid delusions, and feelings of depersonalization and derealization, which characterize acute and chronic psychotic reactions, are seen transiently in states of acute marijuana intoxication as well (Milman 1969).

A consideration of normal child and adolescent development will provide a framework in which to view special psychological effects of cannabis use. For purposes of this discussion, the developmental schemata of Freud, post-Freudian ego psychology (Freedman and Kaplan 1965), Erikson (1963), and Piaget (Ginsburg and Opper 1969) will be invoked. In broad outline, these schemata offer complementary views of the developmental sequence. Freudian psychology and post-Freudian ego psychology address intrapsychic, interpersonal, and instinctual phenomena; Erikson, intrapsychic and interpersonal phenomena; and Piaget, cognitive phenomena.

These schemata are somewhat arbitrary, and there is much overlap among them, as well as considerable individual variation in age of appearance. Also, a child's progress is not necessarily uniform across all of these measures of development. Given that the age of initiation into cannabis use can be as young as 10 or 11 years, the developmental phases of late childhood, preadolescence, and adolescence are discussed below to elucidate how cannabis affects developmental processes.

In late childhood, the conflicts engendered by earlier intense parental attachment have been mastered, repressed, or sublimated. Superego functions are being consolidated, especially the inner controls derived from parental expectations and constraints. Ego functions, particularly those of identification with and striving for the ideal, with roots in middle childhood, work to promote self-esteem. In the Erikson formulation, late childhood is a stage of industry, of striving for mastery, and of adhering to the previously learned rules of the game, all of which combine to combat feelings of inferiority and to enhance a sense of worth.

In Piaget's schema, the young child is in the stage of concrete operations. By this, Piaget means that the child's thinking is becoming objective as well as intuitive, with a capacity to change perspective so as to fit the demands of an external reality, to appreciate more than one dimension of a problem, and to detach oneself from what is observed. This ability to detach in a cognitive sense, to view an action from a different perspective, becomes the basis not only for cognitive learning but also for moral judgment. In sum, late childhood is a relatively unconflicted stage emotionally, with early childhood tensions submerged; with the rules of the game mastered and peer relationships facilitated; and with an active, even accelerating push toward learning and accomplishment.

Introduction of cannabis at this stage can disrupt both emotional equilibrium and intellectual striving. The dysphoric mood effects of cannabis are experienced principally as apathy and listlessness, dampening the normal efforts at mastery and achievement. The cognitive effects of impaired memory, information processing, and retrieval serve to augment the emotional effects of apathy and indifference. Thus, the normal, goal-oriented, achievement-focused stage is foreclosed by both lack of will and lack of capacity. Lack of achievement, in turn, leads to failure to reach one's ego ideal, with consequent loss of self-esteem.

At ages 12, 13, and 14 years, which correspond to school grades 7, 8, and 9, developmental phenomena are in a far more dynamic phase than in childhood, hence disruption has more telling effects. From Freudian and post-Freudian perspectives, young adolescents are beginning to separate themselves from family and to assume a self-defined sense of identity.

This process involves disengaging oneself from childhood attachments, childhood ego ideals, and hitherto accepted parental values. Hence, new relationships, ideals, and values are developing. Necessarily, some degree of disorganization and disintegration occurs prior to restructuring and reintegrating at the new level. Necessarily, too, the process spans several years and absorbs vast amounts of the adolescent's energies. In terms of psychosexual development, the individual has gone through oral, anal, and phallic stages and then been given a moratorium during latency; what now emerges is specifically genital sexuality, driven by hormonal output.

In the Erikson formulation, the stages of early and midadolescence are marked by acquisition of a stable sense of identities, a phenomenon Erikson calls ego diffusion.

In Piaget's schema, these years mark a dramatic cognitive shift from concrete operations to formal operations. Another term for this latter process is abstract thinking, which is characterized by the ability to think in terms of possibility as well as present reality, to deal with multiple possibilities while holding a single factor constant, to combine possibilities, and to generate hypotheses. This capability to manipulate abstract ideas facilitates deductive reasoning, scientific experimentation, assimilation of new ideas, philosophizing, and political theorizing--in fact, the full range of adult forms of sophisticated thought. It is a process that begins in preadolescence, proceeds throughout adolescence, and involves a major cognitive structural reorganization.

Referring to psychological effects, one now can infer the impact of cannabis on adolescent development. Cognition, clearly, is highly vulnerable. The acquisition of skills and the mastery of new material, so important to the individual's self-esteem and academic progress, would be hampered by the drug. Moreover, because the critical transition must be made from concrete to formal operations, a drug that impairs thought processes, verbal facility, and verbal expressivity would compromise that transition. A dramatic decline in academic performance is an objective measure of the drug's effect. The acquisition of new information would be impaired, as would be the type of learning that requires abstract reasoning in mathematics, scientific theory, or the humanities. Thus, academic achievement that requires anything beyond rote learning would be impeded. Academic incapacity, in turn, would lead to loss of self-esteem and ego competence.

Abstract reasoning, which enables one to weigh alternatives, to think in reversible terms, and to make moral judgments, plays an essential role in restructuring the superego and generating an independently determined value system. Failure to develop a serviceable value system can lead to serious social conflicts and dislocations.

The process of separation from parents, with the development of a new ego ideal and a new sense of identity, requires new attachments and affiliations. The person whose drug use causes emotional detachment or apathy has difficulty with developing sustained and supportive attachments. This failure to form meaningful new attachments may result in self-absorption and isolation. It can delay or halt the development of a stable sense of identity.

Another normal feature of the parental separation process and the drive toward independence is oppositional, sometimes hostile, behavior. When adolescents' drug use places them at odds with parental standards, the drug-related behavior can become the focus of severe discord. The separation process then becomes complicated by guilt and sharp differences. The young person, interpreting parental criticism as rejection, may respond with withdrawal, narcissistic preoccupation, and regression. Alienated from parents, burdened with guilt, and tenuously affiliated with peers, such an adolescent is highly vulnerable to the development of psychopathology.

A well-documented consequence of alienation, ego diffusion, and superego weakness--augmented by drug-induced apathy, listlessness, and depression--is an adolescent pathological development often referred to as the amotivational syndrome (Mellinger et al. 1976). In adolescence, this is expressed as inability to pursue studies or work, inability to define or to make any commitment to life goals, and hedonistic pursuit of immediate gratification. In childhood and young adolesence, it is manifest as the so-called "burnout" incapacity and a virtual arrest in cognitive and emotional growth.

Strengthening gender-appropriate psychosexual identification and achieving satisfying heterosexual attachments and functioning are tasks of later adolescence, beginning in the middle teen years and extending into early adulthood. Early adolescence is accompanied by heightened sexual drive and heterosexual awareness, but acting out is usually limited to masturbation, sexual talk, fleeting attachments, and crushes. These tentative activities come into sharper focus in midadolescence in the form of varying degrees of sexual exploration and experimentation, also in temporary romantic attachments in which the beloved is idealized or is perceived as an extension of self. The goal is more one of self-gratification than of sharing. In late adolescence, sexuality and emotional attachment become fused in a relationship of mutual concern, sharing, and intimacy. This last phase is the prelude to a mature, heterosexual, lasting adult attachment.

The cannabis effect can prove highly disruptive to this important developmental task. Not only do the weakened adolescent ego and the tenuous sense of identity interfere with establishing a strong gender identity, this failure, in turn, inhibits heterosexual attachments. One result can be a formless groping, expressed either as promiscuity or as shifting bisexuality. Another is withdrawal from any attempt at sexual fulfillment. The cannabis effect abets this withdrawal by inducing apathy and passivity. For those adolescents who are insecure or are frightened of their sexual impulses, cannabis is employed for its effect in overcoming self-consciousness and inhibition or, alternatively, for dampening sexual drive. The most disruptive cannabis effect, however, is inhibition of the emotional bonding and commitment necessary for true intimacy.

The total impact of these cannabis effects on the developmental process is greater than can be appreciated by separately analyzing the various components. There are distortions and disruptions; there is also omission of a vital, active engagement in the process of growing up--a failure to learn, to experience, to come to grips with anxiety, and to tolerate ambiguity, frustration, and postponement. Thus, the individual emerges from adolescence without having experienced it, without having addressed its tasks, without being able to carry into adulthood the experiences of conflicts resolved, obstacles overcome, fears conquered, social skills mastered, values defined, and relationships enriched.

Psychological Factors

For a complete understanding of the child and adolescent marijuana problem, it is important to examine the factors that predispose to and promote continuation of drug use. One must consider intrapsychic factors, sociocultural issues, and the reinforcing properties of the drug itself, in addition to factors that lead to rejection or discontinuance of use.

Intrapsychic factors can be classed as individual personality characteristics or age-related developmental characteristics. Despite attempts to identify certain personality types as predisposed to drug abuse, there is no research evidence to date that definitely establishes such a casual connection. Certain personality characteristics that may be predisposing emotional factors are insecurity, low self-esteem, anxiety, and depression, singly or in combination. These are seen as possibly overwhelming an immature person's coping skills, thus making it difficult to resist temporary relief in the form of marijuana smoking or other drug use.

Other potentially predisposing factors have been suggested. These are tendencies to take risks, to disregard consequences of one's behavior, to orient only toward the present, and to insist on immediate rather than delayed gratifications. These attitudes are characteristically displayed by many adolescents at certain developmental stages and are not necessarily indicative of a basic personality disorder. At times, however, such tendencies can render the adolescent more vulnerable than usual to overindulge in drug use.

As in adults, the passive-aggressive personality is a problem in adolescents. If confronted with the issue of drug abuse, such a person has difficulty cooperating with authority. There is neither complete acquiescence (which might feel "weak") nor outright opposition (which might invite rejection or engender guilt feelings). Instead, an underlying negative attitude is masked by outward compliance; but the individual unaccountably "forgets" or neglects responsibilities. If the desire to retaliate against authority exceeds a passive-aggressive person's ability to contain hostility or to seek more constructive outlets, drugs may be used to neutralize anger and, simultaneously, to act out defiance.

Sexual anxiety is another feature of the adolescent condition that demands relief. This anxiety appears in many guises: concern about one's physical attractiveness, fear of impotence or other performance problems, fear that heterosexual performance problems may signify homosexuality, belief that an insufficient sexual interest is indicative of "abnormality," or guilt over sex-related interests. Cannabis works in two quite opposite ways to affect this complex array of related anxieties. The immediate effect, especially for a naive or occasional user, is relief of inhibition and heightened sexual arousal and responsivity, with consequent facility of sexual approach and performance. Loss of inhibition also dilutes homosexual anxiety, enabling a degree of experimentation whereby homosexual orientation can be either confirmed or disconfirmed. Prolonged or extensive cannabis use, on the other hand, diminishes sexual interest and drive. Thus, cannabis can play a protective role by providing respite from facing a painful issue.

These are some of the more common intrapsychic and developmental factors that interact with each other and with the disinhibitory and antianxiety properties of cannabis to make it a popular drug. Some factors also must be considered that promote continued use despite such unpleasurable reactions as visual distortions, paranoid ideation, spontaneous "flashbacks," and awareness of deleterious effects.

First, there is the adolescent's feeling of invulnerability; the possibility of self-harm is usually not considered. The young person does not really expect to grow old, let alone die. Thus, an extraordinary degree of denial is possible. This denial is well illustrated by a refusal to acknowledge that unpleasant effects of marijuana are caused by the drug. Instead, it is argued that a "bum" lot caused an atypical "bad trip." Indeed, if one of the smoking group experiences an acute dissociative reaction or a psychotic reaction, the others often blame the person for being "hysterical."

A second incentive for continued use is the antianxiety effect of cannabis. Cannabis provides temporary relief, but it is followed by self-blame either for having used the drug or for neglect of school work or other responsibilities. These feelings are complicated by parental disapproval. All of this leads to feelings of anger and guilt, resulting in more anxiety, which requires resort to the drug for further relief.

Thus, a circular pattern of need-use-need is set up. A similar self-reinforcing pattern is set in motion when cannabis is used to combat depression. Unfortunately, the drug itself can produce depression after a brief period of euphoria, a depression that may be more severe than the original depressed state. This, in turn, leads to continuing drug use to relieve the drug-induced depression, often with the addition of such drugs as cocaine or amphetamines for their specific antidepressant properties.

A discussion of psychological factors would not be complete without mention of a somewhat controversial issue that has troubled specialists in the field of marijuana abuse. There are those, usually psychiatrists, who contend that marijuana is psychologically damaging only to youths in whom there is some preexisting instability (Treffert 1978). There are others, mainly pediatricians, who contend that perfectly normal children, from perfectly normal and well-functioning families, can suffer severe personality disruption from cannabis alone in the absence of predisposing factors (Newton 1981; I.L. Lantner, personal communication, June 3, 1981). The issue is a critical one, because public policy regarding control of marijuana hinges on the issue of whether all children are at risk or only those with some predisposing vulnerability.

The general sociocultural factors facilitating drug use already have been referred to above and will not be recapitulated. Attention is drawn, instead, to particular characteristics of the adolescent condition that promote cannabis use. In American society, peer influences are much more powerful after puberty than are home and family values. In breaking away from family, the adolescent seeks other sources of support, usually from agemates, to fulfill dependency needs, to provide reassurance, and to bolster self-esteem. The passport of entry into this peer support group is adoption of the group's mores in dress, in recreation, in likes and dislikes, and in values and beliefs. Thus, if alcohol, cigarettes, marijuana, or another drug is what the group is "doing," then newcomers will seek acceptance by doing the same. Not only are they inducted into drug use by this route (the social learning theory of induction), but they also see this as a rite de passage into adulthood (Jessor and Jessor 1975). Drug use is further rationalized by the knowledge that everyone else is "doing drugs" and that no one has "proved" its deleterious effects. An additional measure of gratification derives from the belief that the "stoned" state can be concealed from the adult world. This ability to mask intoxication (not possible with a similar degree of alcohol intoxication) adds the excitement of risk and conspiracy to the pleasure of being "high."

Peer pressure--combined with other adolescent behavioral characteristics such as risk taking, the tendency to do things to extremes, and impulsivity--leads to the particularly dangerous phenomenon of multiple and indiscriminate drug use. Adolescents are notorious for the number of drugs they use (Pollin 1981), for their propensity to experiment with unknown or unfamiliar drugs, and for their paradoxical willingness to accept a friend's recommendation regarding drugs, in contrast to their suspicion of a physician's medication prescription.

Studies that address themselves to associated behaviors and characteristics of high school drug users have provided data that are helpful in identifying the youngsters who may be using marijuana or who are at risk for becoming users (Milman and Su 1973). In brief, users are likely to have friends who are users and to perceive the majority of their classmates to be users; many drug users are also alcohol and tobacco users, are not academically successful, are not planning to go to college, are sexually active, and have a history of psychological difficulties. As marijuana use becomes more prevalent, some of these distinctions between users and nonusers are less marked, but the academic, heterosexual, and psychological differences continue to hold.

Other sociocultural reinforcements come from examples set by older adolescents and young adults. For youngsters in general, these represent the entire range of possibilities for drug abstinence, moderate use, or misuse. Individual circumstances determine which attitudes the developing child and adolescent will be exposed to. In addition, most parents, teachers, and significant other adults actively discourage drug use by adolescents and younger adults. In some cases, experimenting with marijuana is actually a temporary activity, part of a growing-up phase. Altogether, decisions must be made as to the powerful effects of adults as role models before one can expect young observers to adopt long-term practices that are healthful.

Relatively little systematic study has been devoted to nonusers of cannabis. When compared with peers who use cannabis, nonusers are found to be more academically oriented and less socially adventurous, to identify themselves more closely with parental values, and to have fewer psychological problems. One may infer that the youngster who is not drawn into drug use has ego strengths and self-esteem that are sufficiently sustaining. The person who voluntarily discontinues use without intervention has probably acquired similar qualities and usually has experimented but has not been a committed user. Such an individual may have experienced an unpleasant reaction or failed to derive the expected euphoria. And, like the nonuser, he or she has interests, strengths, and resources that are sufficiently sustaining.

Treatment

The specifics of treatment are beyond the scope of the students, but they should know about general principles, different modalities, indications, and community resources, because they may ultimately be involved in the referral process as well as in monitoring the progress of the patient or family in treatment.

Treatment modalities are individual psychotherapy, group therapy, family therapy, placement in a drug-free residential community, and hospitalization. The choice of treatment depends on individual and family factors. If the primary problem is a preexisting intrapsychic difficulty, and if the youngster is sufficiently motivated and articulate and possesses a capacity for self-observation and reflection, the treatment of choice would most likely be individual psychotherapy. If the patient has an underlying preexisting disorder but is not especially articulate or introspective, a better choice probably would be group therapy, where others in the group can speak out about thoughts and feelings for which the youngster cannot find expression (Jalali et al. 1981). Moreover, peer pressure of the group can be used constructively to support giving up the use of drugs. If the problem is identified as arising from family interactions rather than from the individual, then therapy addressing the family's malfunctioning would be more appropriate. If the youngster exhibits problems of impulse control and related antisocial trends, or if the family dynamics appear overwhelming or threatening, residential care in a drug-free community might be the treatment of choice (DeLeon and Rosenthal 1979).

The sine qua non for successful treatment, as with alcohol, is to achieve a drug-free state as early as possible in the course of treatment, because no meaningful therapy can be accomplished with a "stoned" patient and also because the drug itself is capable of inducing psychological disorders. Thus, the patient must be studied in a drug-free state for a sufficiently long period before one can differentiate the youngster with a significant underlying or preexisting vulnerability or disorder from the essentially normal adolescent whose deviance is solely drug related. If a drug-free state cannot be achieved by voluntary compliance, parental controls, or group pressure, and if the psychological deviance is so severe as to preclude meaningful therapy, then a period of hospitalization in a drug-free environment may be necessary.

Any of these approaches would involve a high degree of parental involvement, with or without family therapy, because parental support, understanding, and control are important in seeing the young person through a difficult time. Moreover, parents themselves will require support for what can be a painful ordeal, especially those parents who see marijuana rather than their child or themselves as causing the problem.

The threefold aim of therapy, by whatever modality, is to enable the patient to (1) become drug-free and accessible to treatment, (2) deal with conflicts and anxiety in more appropriate ways, and (3) reexperience some of the necessary maturing processes that he or she failed to negotiate during the drug-dependent period. As with the treated alcoholic, prolonged aftercare or supervision may be necessary to prevent a relapse. The important difference between the adolescent marijuana user and the adult alcoholic is that the prognosis for the adolescent--if a drug-free state can be achieved--is better in that the developmental momentum can be resumed and the youngster can complete the unfinished business of growing up.

Chapter 4
Related Drug Issues

Multiple Drug Use

Drug users have a tendency to combine drugs, thus exposing themselves to such additional hazards as drug synergism, enhanced deleterious effects, multiple dependencies, and increased risk of an overdose. Polydrug practices also confound investigations into specific drug effects.

The drugs of abuse, other than alcohol and tobacco, are all either illicit or psychotherapeutic drugs, self-prescribed for nonmedical purposes. After marijuana, which is the most widely used illicit drug, are the following classes of drugs, in order of prevalence: stimulants (including cocaine, amphetamines, methylphenidate), tranquilizers (methaqualone, diazepam), sedatives (barbiturates), hallucinogens (LSD, mescaline, phencyclidine), inhalants (toluene, carbon tetrachloride, gasoline), and opiates (heroin, methadone, propoxyphene) (National Institute on Drug Abuse 1979).

A further point should be made regarding the sequence of drug use. Epidemiological studies (Kandel and Faust 1975) have shown that high school students progress through four stages of drug use: (1) beer or wine, (2) cigarettes or hard liquor, (3) marijuana, and (4) other illicit drugs. Stages 1 and 2 are almost invariably precursors of marijuana use. Twenty-seven percent of students who smoke and drink progress to marijuana use, compared with 2 percent of those who engage in no prior use of legal drugs (Kandel 1975). Moreover, marijuana is a critical step toward other illicit drugs, with 26 percent of marijuana users progressing to self-administration of LSD, amphetamines, or heroin, compared with 2 percent of those who use legal drugs. In a recent followup study, a fifth stage of drug use was identified: prescribed psychoactive drugs. Early users of marijuana were twice as likely as nonusers to progress to this prescription stage (Kandel 1984).

An analysis of drug prevalence trends indicates shifts in popularity. Hallucinogens have been declining recently after their accelerating use in the late 1960s and early 1970s, while cocaine use has increased, rising from 5.6 percent in the senior high school class of 1975 to 9 percent in the class of 1978 (National Institute on Drug Abuse 1979). During the same period, heroin use rose slightly then leveled off, and sedative use declined. During the 1970s, the overall use of marijuana increased, but the use of other drugs, with the exception of cocaine, remained relatively constant.

For the pediatrician, the important facts are that (1) fads change; (2) young people like to experiment; (3) risk-taking youths are concerned only with sensation, not consequences; (4) more boys than girls use "other" drugs and combinations of drugs; and (5) drug use is beginning at younger ages, which puts these agents into the hands of those with the least discrimination and the most immature judgment. When risk taking, immaturity, and depression are combined with multiple drug use or indiscriminant use, the results can be very serious, even fatal. Vehicular accidents, suicide, and homicide, together the leading causes of death in the 15- to 24-year age group (U.S. Bureau of the Census 1980), are often associated with drug and alcohol use (Milner 1977).

Fetal Drug Syndromes

Increasing drug use and the rising incidence of adolescent pregnancy expose the unborn to risks that are relatively new in pediatric practice. Knowledge of how drugs affect the fetus and newborn infants is expanding, but much work remains to be done (Carakushansky et al. 1969; Golden et al. 1980). It is clear that drug exposure is likely to be multiple as well as single, rendering somewhat questionable many assumptions about the effect of a particular drug, even one as well studied as alcohol. Moreover, the apparent drug effect may be due, in part, to the associated living conditions of the pregnant adolescent, such as inadequate nutrition, poor general hygiene, and lack of prenatal care.

With these caveats, certain effects of drugs can be generalized. Tobacco, alcohol, opiates, and marijuana are associated with prematurity and with fetal growth retardation. Dysmorphogenesis is a well-documented effect of maternal alcohol ingestion (Hanson et al. 1978; Steissguth et al. 1980). Whether other drugs of abuse are similarly embryotoxic is not clear, but pediatricians have learned to anticipate that any drug taken during the first trimester must be assumed to have an embryotoxic potential unless there is proof to the contrary. Recent work suggests that fetal exposure to marijuana can result in low birthweight infants and dysmorphic features similar to those associated with fetal exposure to alcohol (Hingson et al. 1982; Qazi et al. 1984).

Again, combinations of drugs, none of which may be embryotoxic alone, may have a different action when taken together. Apart from embryotoxicity and low birthweight, the offspring of drug-using women are at risk for a host of other complications, including intrauterine asphyxia, prematurity, neonatal hypoxia, jaundice, and hyaline membrane disease (Ostrea and Chavez 1977). Close monitoring of the effects of illicit drugs is in progress, although studies are difficult because of the inherent unreliability of retrospective drug histories.

A more difficult problem is to assess the role of prenatal drug exposure in developmental disorders when biological markers are absent. In the case of maternal alcohol ingestion, data have been accumulating to suggest that the offspring can have features of neurodevelopmental dysfunction syndrome, mild or moderate mental retardation, or learning disability, without any dysmorphic features (Shaywitz et al. 1980; Voorhees et al. 1979; Wilson et. al. 1981). Babies of methadone-treated mothers also manifest developmental delays as they are followed into childhood, although a confounding problem is that the environment provided by the drug-using mother might, in itself, impair development (Kaltenbach et al. 1979).

Withdrawal syndromes in the newborn present the pediatrician with management problems (Bleyer and Marshall 1972; Harper et al. 1974; Pierog et al. 1977; Rementeria and Bhatt 1977; Tyson 1974). Symptoms vary depending on the specific drug, the timing of the last predelivery dose, and whether the baby is withdrawing from a single drug or more than one. The clinical manifestation common to all drugs of abuse is central nervous system irritability, ranging from mild tremors and hyperreflexia at one end of the spectrum, through restlessness and disturbed sleep, to convulsions and status epilepticus at the other (Dinges and Davis 1980; Herzlinger et al. 1977). The onset can be as early as a few hours of age (as in the case of tobacco, alcohol, or heroin) or as late as 5 or 6 days (in the case of methadone).

The specifics of treatment depend on the particular drug or drugs used, but certain principles or management applies to all. Nutrition must be maintained in the face of excessive motor activity, irritability, poor nutritive sucking, vomiting, and diarrhea (Kron et al. 1976). Convulsions must be controlled, either by anticonvulsant medication or by administration of progressively smaller doses of the drug (or an analog) from which the infant is withdrawing. Prolonged observation is necessary, because withdrawal symptoms sometimes recur days after apparent subsidence. Methadone babies, especially, have a very prolonged period of withdrawal; 2 months is not unusual. Finally, the exposed infant requires prolonged monitoring after recovery from withdrawal because of the increased vulnerability to sudden infant death (Chavez et al. 1979) and because of later developmental problems.

The Drug-Abusing Mother

Prevention, early identification, and early prenatal care are the goals to be sought. Indeed, prevention of adolescent pregnancy also might be a worthy goal. Public education and casefinding in prenatal clinics are highly desirable programs.

Programs directed at maintaining the prospective mother's nutrition and hygiene are effective, especially for mothers receiving methadone (Salerno 1977). An added benefit of these programs is that they support the women psychologically, both during pregnancy and afterward, and thus improve the prospect that their babies will receive proper care (Wilson et al. 1981).

All these benefits have certain weaknesses. Those prospective mothers who are in the greatest need, the severe alcoholics and the street heroin users, are usually not available for treatment. Indeed, many of them receive no prenatal care whatsoever. Another weakness is that treatment directed at a drug-free state is difficult to achieve. In the case of methadone treatment, the aim is to maintain the lowest dose consistent with avoidance of withdrawal symptoms. Even then, patients notoriously abuse the treatment regimen by taking other drugs, including heroin, other opiates, tranquilizers, sedatives, marijuana, stimulants, and alcohol.

Note should be made of two additional factors that can adversely affect the infant as well as the fetus. First, most if not all abused drugs, especially opiates and cannabis, are found in the mother's milk (Luthra 1979; McGeer and Jacubovic 1979). Second, marijuana, like tobacco, can be inhaled by nonsmokers (so-called passive smoking) in close contact with smokers in poorly ventilated quarters (Zeidenberg et al. 1977).

The task of the pediatrician is clear: to enlist a mother's cooperation insofar as it is possible and to undo and prevent further harm to the infant. This is a formidable task, one that requires continuing self-education, even while we are educating the new generation of pediatricians.

Management of Untoward Reactions and Overdosage

The patient who has experienced an untoward reaction in the form of an acute psychosis or an overdose will present as either a medical or a psychiatric emergency or both. The first step in management is the recognition that one is dealing with an adverse drug reaction. Recognition is not difficult, if one keeps this is mind when a pediatrics patient presents with one or more of the following psychological symptoms: acute agitation, disorientation, somatic delusions, paranoid delusions, visual hallucinations, panic, and unmanageable hostility. Physical symptoms, which may occur in the absence of or subsequent to psychological aberrations, include drowsiness, lethargy, somnolence, stupor, convulsions, and varying degrees of coma.

Because the psychological picture may be a prelude to alteration in sensorium and progressive CNS depression, the patient should be dealt with medically as if CNS depression were pending. That is, ingestion of a drug must be suspected. This calls for emptying the stomach, monitoring vital signs, attempting to sedate the patient with verbal reassurance and, if necessary, restraining the patient. Antipsychotic medication is not recommended unless the ingested drug or combination of drugs is known with certainty; otherwise the existing neurophysiological derangements could be further complicated. For CNS depression, standard monitoring and support measures should be instituted promptly, preferably in an intensive care setting.

Stomach contents, urine, and blood must be screened for all the usual drugs. Treatment of overdose for specific drugs has been standardized (Bourne 1976). If specific information is not readily available, telephone consultation with the local poison control agency will provide information.

Pending chemical reports, every effort must be made to obtain an accurate drug history. However, the patient is usually not capable of responding, friends may fear reprisals for being involved in illicit activities, and the parents may be uninformed. Persistent inquiry may encourage parents to seek information from the child's associates. Alternatively, the pediatrician may approach the child's friends, using his or her experience with young people to encourage their confidence.

On recovery (and most reactions are resolved within 48 hours), the child must be dealt with sympathetically and compassionately to ascertain which substances have been used, and, more important, why. Accidental overdose requires an approach different from that of a suicide attempt. The pediatrician must be aware of depression as a motivation for and a consequence of drug use. Pursuit of these issues is essential to development of an appropriate treatment of plan. finally, no treatment of drug overdose is complete without specific plans for aftercare.

Chapter 5
The Problem of the Student User

With approximately 70 percent of medical students at schools in New York and California reportedly having had some personal experience with marijuana (Lipp et al. 1971), it is to be expected that some users will be found in most classes or seminar groups, as well as among house staff and the younger faculty. While most users do not identify themselves as abusers (indeed, chronic heavy users are not likely to have achieved academically at a level necessary for entry into medical school), there may be some, just as with alcohol abuse, who can manage an acceptable although probably not optimal level of functioning.

The problem of the affected student or physician can be introduced as a topic for discussion in the course on cannabis abuse. Such issues as the effect of regular use on learning, judgment, decisions regarding patients' use, and opinion regarding public policy can be opened for discussion. The intention would be to stimulate the expression of a range of opinions, leading to a critical assessment of how marijuana use might affect professional judgment. The results of the student attitude questionnaire (Appendix A) could be reintroduced at this point for further exploration of the issues.

Confronting the issue of student use and abuse directly in the seminar or classroom format presents the instructor with many problems. Foremost is the fact that many students reject the classification of marijuana as a dangerous drug. Medical student users bring with them the denial and rationalization they learned in high school and college. This results in defensive responses when deleterious effects and consequences are discussed. Practiced users often are prepared with counterarguments culled from a confusing array of scientific and quasi-scientific publications. A single articulate and persuasive student can polarize the entire group, taxing the instructor's ingenuity to foster a rational dialogue.

Linked to the foregoing is the problem that many medical students are too close to their own adolescence to face this difficult issue dispassionately. The mere inclusion of drug use in the curriculum reawakens adolescent conflicts with authority and strivings for autonomy. The drug issue is the paradigm of the antiestablishment stance of late adolescence, and most medical students have difficulty facing it objectively.

Yet another problem is the issue of confidentiality. It is difficult to present cogent illustrative case material drawn from the student population without seeming to betray trust. Thus, the discussion may have the weakness of being too generalized or too intellectualized.

In the absence of anxiety regarding personal functioning or fear of sanctions, the student may have no motivation to change. And because the popular perception that marijuana is innocuous is also the student user's perception, the teacher must either arouse anxiety or rely on antidrug peer sentiment. The NBC film, "Reading, Writing and Reefer" (see Appendix B), has been found to have a strong impact on many student groups, although it provokes defensiveness in some. It may be useful to terminate a session by inviting interested students to come to a faculty member individually to continue the dialogue, at which time personal issues and concerns may be aired and then dealt with in whatever way seems appropriate.

Thus, the approach to the drug-abusing medical student is not as clearcut as in the case of alcohol abuse. Pending the development of a public consensus and a clearly articulated public health policy, the pediatrician-teacher must assume leadership and speak unambiguously. The message to the student is that the use of marijuana, as with all other illicit drugs, is medically contraindicated and that use by children and by those entrusted with their care should be actively discouraged.

The implementation of this position will be made easier once public health policy has been clearly and unequivocally delineated.

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APPENDIX A

____ ____ ____ 1 (1-4)

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ATTITUDES AND OPINIONS QUESTIONNAIRE

This questionnaire was developed by the author (Doris H. Milman) and colleagues for study in New York City secondary schools, involving 10,000 students. It is being offered here for discussion purposes only.

Please respond to the following by placing a check (✓) on the appropriate line, or by writing in a number where required. Ignore the numbers in parentheses in the column to the left; these are for computer coding only.

1. Enter your present year of graduate study (e.g., write in "2" if second year, etc.).

(5) ______

2. Enter your age in years (e.g., 21, if 21 years old).

(6,7) ______ ______

3. Sex

______ (1) Male
(8) ______ (2) Female

4. Marital status

(9) ______ (1) Single
______ (2) Married
______ (3) Separated
______ (4) Divorced

5. How many children do you have?

(10) ______

6. What is your parents' religion?

(11) ______ (1) Catholic
______ (2) Protestant
______ (3) Jewish
______ (4) Mixed
______ (5) Other; specify here ____________________
______ (6) Don't know

7. Have you ever used any of the substances listed in question 8, nos. 13-25? (*self-prescribed, not prescribed by a physician)

(12) ______ (1) Yes
______ (2) No (go to question #10)

8. If you answered "yes" to question 7, please indicate which of the following you tried first; which you tried second; which you tried third; which you tried fourth or thereafter. Please circle one alternative for each item.

	Substance	First	Second	Third	Fourth	Have not tried
(13)	alcohol	1	2	3	4	5
(14)	amphetamines*	1	2	3	4	5
(15)	barbiturates*	1	2	3	4	5
(16)	cocaine	1	2	3	4	5
(17)	diazepam* (Valium)	1	2	3	4	5
(18)	hashish	1	2	3	4	5
(19)	heroin	1	2	3	4	5
(20)	inhalants (glue, carbona)	1	2	3	4	5
(21)	LSD	1	2	3	4	5
(22)	marijuana	1	2	3	4	5
(23)	methaqualone* (Quaalude)	1	2	3	4	5
(24)	phencyclidine (PCP)	1	2	3	4	5
(25)	tobacco	1	2	3	4	5

9. How often do you currently use each of the following? (*self-prescribed, not prescribed by physician). Please circle one alternative for each item.

				Currently using			
	Substance	Never	Tried once	1x a month or less	2x a month to 2x a week	More than 2x a week	Usually all the time
(26)	alcohol	1	2	3	4	5	6
(27)	amphetamines*	1	2	3	4	5	6
(28)	barbiturates*	1	2	3	4	5	6
(29)	cocaine	1	2	3	4	5	6
(30)	diazepam* (Valium)	1	2	3	4	5	6
(31)	hashish	1	2	3	4	5	6
(32)	heroin	1	2	3	4	5	6
(33)	inhalants (glue, carbona)	1	2	3	4	5	6
(34)	LSD	1	2	3	4	5	6
(35)	marijuana	1	2	3	4	5	6
(36)	methaqualone* (Quaalude)	1	2	3	4	5	6
(37)	phencyclidine (PCP)	1	2	3	4	5	6
(38)	tobacco	1	2	3	4	5	6

(39) 10. Do you have any younger brothers and sisters under the age of 18 years?

______ (1) Yes

______ (2) No (go to question 12)

11. If you answered "yes" to question 10, please answer the following question.

Would you want your brothers and sisters younger than age 18 to try any of the following? Please circle one alternative for each item listed. (*self-prescribed)

	Substance	No	Yes, any age	Yes, legal age (e.g., 18 years)	Yes, only with doctor's prescription	Not sure, no opinion
(40)	alcohol	1	2	3	4	5
(41)	amphetamines*	1	2	3	4	5
(42)	barbiturates*	1	2	3	4	5
(43)	cocaine	1	2	3	4	5
(44)	diazepam* (Valium)	1	2	3	4	5
(45)	hashish	1	2	3	4	5
(46)	heroin	1	2	3	4	5
(47)	inhalants (glue, carbona)	1	2	3	4	5
(48)	LSD	1	2	3	4	5
(49)	marijuana	1	2	3	4	5
(50)	methaqualone* (Quaalude)	1	2	3	4	5
(51)	phencyclidine (PCP)	1	2	3	4	5
(52)	tobacco	1	2	3	4	5

12. Please indicate if you would introduce your own children to the use of the following? Please circle one alternative for each item. (*self-prescribed, not prescribed by physician).

	Substance	Never	Any age (if I thought they were mature)	Over 18 or legal age	Not sure, no opinion
(53)	alcohol	1	2	3	4
(54)	amphetamines*	1	2	3	4
(55)	barbiturates*	1	2	3	4
(56)	cocaine	1	2	3	4
(57)	diazepam* (Valium)	1	2	3	4
(58)	hashish	1	2	3	4
(59)	heroin	1	2	3	4
(60)	inhalants (glue, carbona)	1	2	3	4
(61)	LSD	1	2	3	4
(62)	marijuana	1	2	3	4
(63)	methaqualone* (Quaalude)	1	2	3	4
(64)	phencyclidine (PCP)	1	2	3	4
(65)	tobacco	1	2	3	4

13. In the following columns please indicate for each item whether you think it has the potential of being harmful to a user, either physically or psychologically. Please circle one alternative for each item. (*self-prescribed, not prescribed by physician).

	Substance	Physical	Psychological	Both	Neither
(66)	alcohol	1	2	3	4
(67)	amphetamines*	1	2	3	4
(68)	barbiturates*	1	2	3	4
(69)	cocaine	1	2	3	4
(70)	diazepam* (Valium)	1	2	3	4
(71)	hashish	1	2	3	4
(72)	heroin	1	2	3	4
(73)	inhalants (glue, carbona)	1	2	3	4
(74)	LSD	1	2	3	4
(75)	marijuana	1	2	3	4
(76)	methaqualone* (Quaalude)	1	2	3	4
(77)	phencyclidine (PCP)	1	2	3	4
(78)	tobacco	1	2	3	4

____ ____ ____ ____2 (1-4)

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14. As a practicing physician, what do you anticipate your attitude will be toward use of each of the following by patients under age 18? Please circle one alternative for each item. (*self-prescribed, not prescribed by physician).

	Substance	Neutral	Actively discourage	Condone	Not sure, or no opinion
(5)	alcohol	1	2	3	4
(6)	amphetamines*	1	2	3	4
(7)	barbiturates*	1	2	3	4
(8)	cocaine	1	2	3	4
(9)	diazepam* (Valium)	1	2	3	4
(10)	hashish	1	2	3	4
(11)	heroin	1	2	3	4
(12)	inhalants (glue, carbona)	1	2	3	4
(13)	LSD	1	2	3	4
(14)	marijuana	1	2	3	4
(15)	methaqualone* (Quaalude)	1	2	3	4
(16)	phencyclidine (PCP)	1	2	3	4
(17)	tobacco	1	2	3	4

15. As a practicing physician, what do you anticipate your attitude will be toward use of each of the following by patients over age 18? Please circle one alternative for each item. (*self-prescribed, not prescribed by physician).

	Substance	Neutral	Actively discourage	Condone	Not sure, or no opinion
(18)	alcohol	1	2	3	4
(19)	amphetamines*	1	2	3	4
(20)	barbiturates*	1	2	3	4
(21)	cocaine	1	2	3	4
(22)	diazepam* (Valium)	1	2	3	4
(23)	hashish	1	2	3	4
(24)	heroin	1	2	3	4
(25)	inhalants (glue, carbona)	1	2	3	4
(26)	LSD	1	2	3	4
(27)	marijuana	1	2	3	4
(28)	methaqualone* (Quaalude)	1	2	3	4
(29)	phencyclidine (PCP)	1	2	3	4
(30)	tobacco	1	2	3	4

16. As a practicing physician, what do you anticipate your attitude will be toward the following?

Parents should be informed when contraceptives are prescribed for their children. Please circle one alternative for each item.

		Yes	No	Individualize according to circumstances	Not sure, or no opinion
(31)	under 15 yrs.	1	2	3	4
(32)	15-18 yrs.	1	2	3	4
(33)	over 18 yrs.	1	2	3	4

17. As a practicing physician, what do you anticipate your attitude will be toward the following?

Parents should be informed when a pregnancy has been diagnosed in their daughter. Please circle one alternative for each item.

		Yes	No	Individualize according to circumstances	Not sure, or no opinion
(34)	under 14 yrs.	1	2	3	4
(35)	14-16 yrs.	1	2	3	4
(36)	16-18 yrs.	1	2	3	4
(37)	over 18 yrs.	1	2	3	4

18. As a practicing physician, what do you think your attitude will be toward the following sexual practices by patients? Please circle one alternative for each item.

		Neutral	Actively discourage	Condone	Not sure, or no opinion
(38)	heterosexual activity under 16 yrs.	1	2	3	4
(39)	16-18 yrs.	1	2	3	4
(40)	over 18 yrs.	1	2	3	4
(41)	homosexual activity	1	2	3	4
(42)	promiscuity	1	2	3	4

19. As a practicing physician, what do you think your attitude will be toward legalization of the following for recreational use? Please circle one alternative for each item.

		No	Yes, any age	Yes, legal age	Yes with only doctor's prescription	Not sure, or no opinion
(43)	cocaine	1	2	3	4	5
(44)	hashish	1	2	3	4	5
(45)	heroin	1	2	3	4	5
(46)	marijuana	1	2	3	4	5

APPENDIX B

ANNOTATED LIST OF CURRICULUM MATERIAL

Books and Monographs

Bourne, P.G., ed. *Acute Drug Abuse Emergencies. A Treatment Manual.* New York: Academic Press, 1976. 361 pp.

> An approach to the recognition and treatment of drug abuse emergencies is presented in this manual.

Erikson, E.H. *Childhood and Society.* 2d ed. New York: Norton, 1963. 445 pp.

> This classic formulation of developmental stages in the context of Western society illuminates the child and adolescent condition in a manner particularly germane to clinical teaching in pediatrics.

Gilman, A.G.; Goodman, L.S.; and Gilman, A., eds. *The Pharmacological Basis of Therapeutics.* 6th ed. New York: Macmillan, 1980. 1,843 pp.

> This authoritative, classic textbook presents the basic and applied aspects of pharmacokinetics as they relate to all drugs.

Ginsburg, H., and Opper, S. *Piaget's Theory of Intellectual Development: An Introduction.* Englewood Cliffs, N.J.: Prentice-Hall, 1969. 237 pp.

> This summary of Piaget's conceptualization of cognitive development is a well-written, easily understandable summary of Piaget's method and conclusions. A knowledge of Piaget's formulation is essential to an understanding of child development and the impact of cannabis on cognition.

Group for the Advancement of Psychiatry, Committee on Adolescence. *Normal Adolescence: Its Dynamics and Impact.* Vol. 6. Report No. 68, February 1968. New York: Group for the Advancement of Psychiatry, 1968. 107 pp.

> This straightforward, comprehensive description of the psychology of adolescence incorporates the essentials of current thinking. It is available through the Publications Office, Group for the Advancement of Psychiatry, 419 Park Avenue South, New York, NY 10016.

Group for the Advancement of Psychiatry, Committee on Public Education. *The Joys and Sorrows of Parenthood.* New York: Charles Scribner's Sons, 1973. 159 pp.

> The chapters devoted to transmission of values and handling of discipline are important to an understanding of parental concerns in childrearing.

Nahas, G.G., and Frick, H.C., III, eds. Drug Abuse in the Modern World. New York: Pergamon Press, 1981. 381 pp.

> The chapters on cannabis reflect current research as well as political and social issues. The scope is broader than most medical publications on drug abuse.

Nahas, G.G.; and Paton, W.D.M., eds. Marihuana: Biological Effects. Proceedings of the Satellite Symposium of the Seventh International Congress of Pharmacology, Reims, 1978. New York: Pergamon Press, 1979. 777 pp.

> The collected papers of the Reims symposium form the basis of much current writing on the biochemical and physiological effects of marijuana. This is a good reference source, although much of the material may be too technical for the average clinical teacher.

National Institute on Drug Abuse. Growing Up in America, by MacLeod, A. DHEW Pub. No. (ADM) 75-106. Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1975. 98 pp.

> This thoughtful, sensitive, and sympathetic book uses the case study method of presentation of a variety of adolescent problems and dilemmas, with each case study followed by comments and suggested readings. The bibliography is classified for parents, teachers, and youths.

National Institute on Drug Abuse. Handbook on Drug Abuse, by Dupont, R.I.; Goldstein, A.; and O'Donnell, J., eds. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1979. 452 pp.

> This handbook reviews treatment modalities available for drug abusers in general, as well as for those with special needs--women, young people, minorities, and the elderly. Psychosocial and epidemiological studies of drug abuse are presented, and issues of basic research and of drug abuse prevention are addressed.

National Institute on Drug Abuse. Marijuana Research Findings: 1980, Petersen, R.C., ed. DHHS Pub. No. (ADM) 80-1001. NIDA Research Monograph Series No. 31. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1980. 225 pp.

> This survey of research findings emphasizes biochemistry and metabolism, effects on neurophysiology and cognition, effects on reproduction, synergism with other drugs, and therapeutic uses. The chapters on marijuana and health and an overview of human effects are especially informative.

National Institute on Drug Abuse. Correlates and Consequences of Marijuana Use, by Glantz, M.D., ed. DHHS Pub. No. (ADM) 84-1276. NIDA Research Issues Series No. 34. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1984. 386 pp.

> This volume is intended to deal with long-term consequences of marijuana use, and there is an emphasis on studies of high frequency and high-quality use. In addition, some research on short-term consequences and an occasional use is included. The three parts of

this publication present (1) an overview of the literature, (2) 127 abstracts of relevant publications, and (3) an extensive bibliography.

Ostrea, E.M., Jr.; Chavez, C.J.; and Stryker, J.C. The Care of the Drug-Dependent Woman and Her Infant. Lansing, Mich.: Department of Public Health, 1978. 83 pp.

This easily read book includes many important facts concerning the care of the drug-dependent pregnant woman and her baby.

Rementeria, J.L, ed. Drug Abuse in Pregnancy and Neonatal Effects. St. Louis: C.V. Mosby, 1977. 229 pp.

Contributions from more than 30 authors present a multidisciplinary view of the dimensions and consequences of drug abuse during pregnancy.

Simons, R.C., and Pardes, H., eds. Understanding Human Behavior in Health and Illness. Baltimore: Williams and Wilkins, 1977. 718 pp.

The chapters on child and adolescent development offer a synthesis of major current theoretical formulations regarding development and personality.

Audiovisual Material

First Aid: Drug Emergency

16 mm, color, 16 min. Churchill Films, 662 North Robertson Blvd., Los Angeles, CA 90069. Rental or purchase.

A presentation of two examples of physiological mechanisms of drug emergencies, and the recognition and management of each situation.

Marijuana - Driving and You

16 mm, color, 13 min. Charles Cahill Associates, 626 Justin Avenue, Glendale, CA 91201. Rental or purchase.

Conveys the clear message that marijuana impairs the skills required for driving and, when combined with alcohol or other drugs, renders driving even more dangerous.

Reading, Writing, and Reefer

16 mm and 3/4" videocassette, color, 52 min. Films Incorporated, 733 Green Bay Road, Wilmette, IL 60091. Rental or purchase.

Examines the dramatic increase in the use of marijuana by American children and the consequences to their physical and psychological health and well being. Narrated by Edwin Newman.

The Neonatal Abstinence Syndrome: Diagnosis

3/4" videocassette, color, 10 min. Career Teacher Center, Baylor College of Medicine, 1200 Moursund Avenue, Houston, TX 77030. Purchase.

> An excellent teaching film that presents a clinical demonstration of the signs and symptoms of neonatal abstinence syndrome.

The Neonatal Abstinence Syndrome: Management of the Acute Phase of Complications

3/4" videocassette, color, 12 min. Career Teacher Center, Baylor College of Medicine, 1200 Moursound Avenue, Houston, TX 77030. Purchase.

> A followup to the previous videocassette that outlines a treatment regimen for neonatal abstinence syndrome and presents an approach to recognition and management of complications.

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THE SERIES

Copies of previously printed publications in the Health Professions Education Curriculum Resources Series are available from the National Clearinghouse for Alcohol Information (NCALI). For more information or to obtain copies, write to NCALI, P.O. Box 2345, Rockville, Maryland 20852. To date the series includes:

MEDICINE 1

Alcohol and Drug Abuse Teaching Methodology for Medical Faculty
Jephta R. Hostetler, Ph.D.

"Alcohol and Drug Abuse Teaching Methodology Guide for Medical Faculty is intended for instructors in medical and osteopathic schools. This monograph presents a variety of new approaches for teaching substance abuse disorders, reviews instructional methodologies that have proved effective in the past, and recommends resources useful for developing alcohol and drug curricula. Medical educators are encouraged enthusiastically to try new ideas, selecting those appropriate to individual needs, style, and expertise in teaching."

ADM 82-1158

MEDICINE 2

Alcohol and Drug Abuse Curriculum Guide for Psychiatry Faculty
Donald S. Gallant, M.D.

"The major goal of this monograph is to provide a guide for psychiatric faculty in teaching the subject of substance abuse (alcohol and other drugs of misuse) to medical students. This guide explains and summarizes the core material that the author and reviewers consider to be most important for the student to learn and contains a list of curriculum materials and a selected bibliography with explanations for the selection of these materials."

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NURSING 3

Alcohol Abuse Curriculum Guide for Nurse Practitioner Faculty
Judith Hasselblad, C.R.N., M.N., F.N.P

"This guide covers three major areas of instruction: recognition, diagnosis, and management. It is targeted at nurse practitioner faculty who do not have expertise in alcohol education but who want to introduce alcohol instruction into their curricula. The core content is presented in outline form and is supported by recommended texts, background readings, and teaching methodologies. Students presumably already will have completed a generic program and possess history-taking, physical assessment, and clinical decisionmaking skills. The guide is designed so that the instructor can use this previously acquired knowledge as a basis for developing new skills specifically required for the recognition, diagnosis, and management of alcoholism."

ADM 84-1313